ASUS®

V-Series M2NC61P

ASUS PC (Desktop Barebone)

Installation Manual
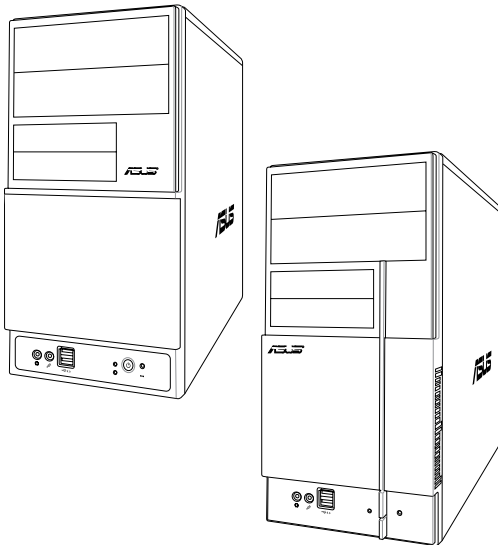
E3533

First Edition
December 2007

Table of contents

Table of contents

Table of contents

Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING! The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing devices into the system, carefully read all the documentation that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet. Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

Lithium-Ion Battery Warning

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

VORSICHT: Explosionsgetahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnljchen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

LASER PRODUCT WARNING

CLASS 1 LASER PRODUCT

The symbol of the crossed out wheeled bin indicates that the product (electrical, electronic equipment, Mercury-containing button cell battery) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

About this guide

Audience

This guide provides general information and installation instructions about the ASUS Vintage V-Series M2NC61P barebone system. This guide is intended for experienced users and integrators with hardware knowledge of personal computers.

How this guide is organized

This guide contains the following parts:

1. **Chapter 1: System introduction**

    This chapter gives a general description of the ASUS V-Series M2NC61P. The chapter lists the system features, including introduction on the front and rear panel, and internal components.

2. **Chapter 2: Basic installation**

    This chapter provides step-by-step instructions on how to install components in the system.

3. **Chapter 3: Starting up**

    This chapter helps you power up the system and install drivers and utilities from the support CD.

4. **Chapter 4: Motherboard information**

    This chapter gives information about the motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

5. **Chapter 5: BIOS information**

    This chapter tells how to change system settings through the BIOS Setup menus and describes the BIOS parameters.

Conventions used in this guide

WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to aid in completing a task.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1.   ASUS Websites

The ASUS websites worldwide provide updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2.   Optional Documentation

Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

System package contents

Check your V-Series M2NC61P system package for the following items.

If any of the items is damaged or missing, contact your retailer immediately.

Item description
1.   **ASUS V-Series M2NC61P barebone system** with
• ASUS motherboard
• Power supply unit
• ASUS chassis
2.   **Cable**
• AC power cable
3.   **Support CD**
4.   **User guide**

An optional card reader is available along with the system for the users to purchase.

Chapter 1

This chapter gives a general description of the ASUS V-Series M2NC61P. The chapter lists the system features including introduction on the front and rear panel, and internal components.
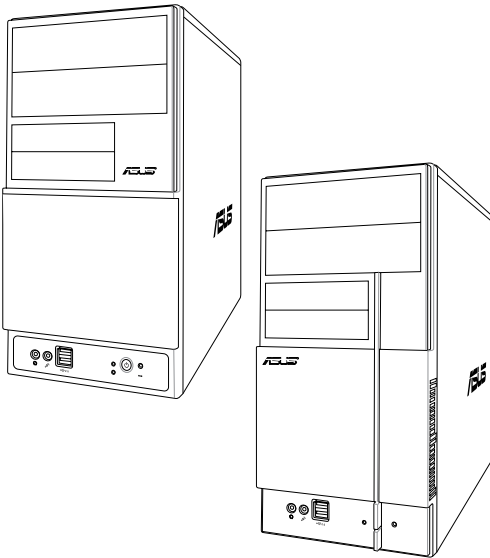
1.1 Welcome!

Thank you for choosing the ASUS V-Series M2NC61P!

The ASUS V-Series M2NC61P is an all-in-one barebone system with a versatile home entertainment feature.

The system comes in a stylish casing and powered by the ASUS motherboard with the AMD Socket M2 that supports the AMD® Athlon™ 64 X2 / Athlon™ 64 / Athlon™ FX / Sempron™ processors.

The system supports up to 4 GB of system memory using DDR2-1066/800/667/533 DIMMs. High-resolution graphics via Nvidia on board Gfx or PCI Express x16 slot, Serial ATA, USB 2.0, and 6-channel audio feature the system and take you ahead in the world of power computing.

1.2 Front panel

The front panel includes the optical drive bays, floppy disk drive slot, power button, and several I/O ports are located at the front panel.
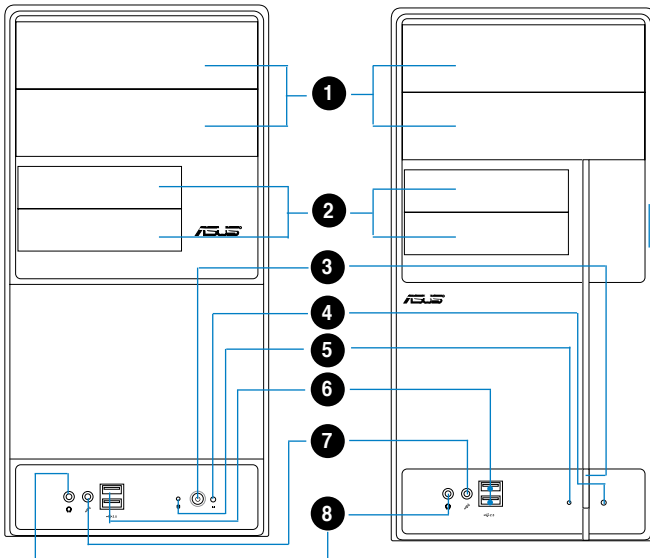
1. **Two empty 5.25-inch bays.** These bays are for IDE optical drives.
2. **3.5-inch drive bays.** These slots are for 3.5-inch floppy or hard disk drives.
3. **Power button.** Press this button to turn the system on.
4. **Reset button.** Press this button to reboot the system without turning off the power.
5. **HDD LED.** This LED lights up when data is read from or written to the hard disk drive.
6. **USB 2.0 ports.** These Universal Serial Bus 2.0 (USB 2.0) ports are available for connecting USB 2.0 devices such as a mouse, printer, scanner, camera, PDA, and others.
7. **Microphone port.** This Mic (pink) port connects a microphone.
8. **Headphone port.** This Line In (green) port connects a headphone with a stereo mini-plug.

This V-series provide V2/V3 two types of front panel for users to choose, please refer to your product package for the front panel type you purchased.

PCI Express Graphics Slot supports most of the ATi® and NVDIA® graphics cards, except some ATi® graphics cards of old version, such as ATi® X300, X550, X700, and X800 series.

An optional Card Reader (see the figure bellow) available. It is to be installed in the 3.5-inch drive bay, and connected to the motherboard through a USB cable.

1.3 Rear panel

The system rear panel includes the power connector and several I/O ports that allow convenient connection of devices.
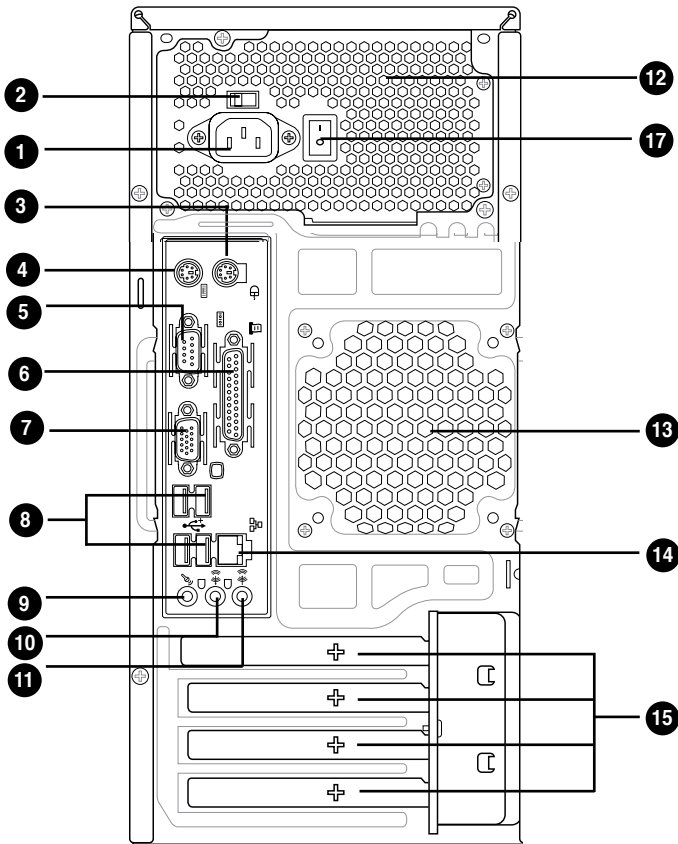
> ⚠️ Do NOT cover the rear vent , and the ambience temperature is limited up to 35ºC to prevent the system from overheating.

1. **Power connector.** This connector is for the power cable and plug.
2. **Voltage selector.** This switch allows you to adjust the system input voltage according to the voltage supply in your area. See the section "Voltage selector" on page 1-6 before adjusting this switch.
3. **PS/2 mouse port.** This green 6-pin connector is for a PS/2 mouse.
4. **PS/2 keyboard port.** This purple 6-pin connector is for a PS/2 keyboard.

5. **Serial port.** This 9-pin COM1 port is for serial devices.

6. **Parallel port.** This 25-pin port connects a printer, scanner, or other devices.

7. **VGA port.** This port connects a VGA monitor.

8. **USB 2.0 ports 1, 2, 3 and 4.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

9. **Microphone port (pink).** This port connects a microphone.

10. **Line Out port (lime).** This port connects a headphone or a speaker. In 4-channel and 6-channel configuration, the function of this port becomes Front Speaker Out.

11. **Line In port (light blue).** This port connects the tape, CD, DVD player, or other audio sources.

Refer to the audio configuration table below for the function of the audio ports in 2, 4, or 6-channel configuration.

Audio 2, 4, or 6-channel configuration

Port	Headset 2-speaker	4-speaker	6-speaker
Light Blue	Line In	Surround Out	Surround Out
Lime green	Line Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Center/Bass

12. **Power supply unit fan vent.** This vent is for the PSU fan that provides ventilation inside the power supply unit.

13. **Chassis fan vent.** This vent is for the fan that provides ventilation inside the system chassis.

14. **LAN (RJ-45) port.** This port allows connection to a Local Area Network (LAN) through a network hub.

15. **Expansion slot covers.** Remove these covers when installing expansion cards.

16. **Power Switch.** This switch is for switching on/off the power supply unit.

Voltage selector

The PSU has a 115 V/230 V voltage selector switch located beside the power connector. Use this switch to select the appropriate system input voltage according to the voltage supply in your area.

If the voltage supply in your area is 100-127 V, set this switch to 115 V.

If the voltage supply in your area is 200-240 V, set this switch to 230 V.

115V/230V
Voltage selector
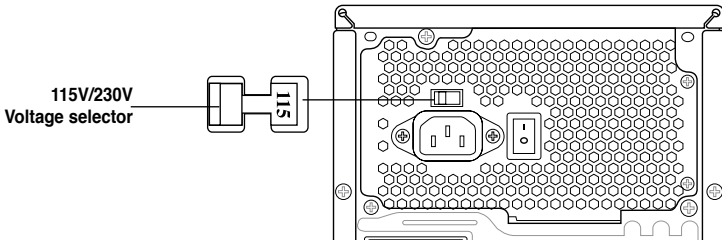
Setting the switch to 115V in a 230V environment or 230V in a 115V environment will seriously damage the system!

1.4   Internal components

The illustration below is the internal view of the system when you remove the top cover and the power supply unit. The installed components are labeled for your reference. Proceed to Chapter 2 for instructions on installing additional system components.
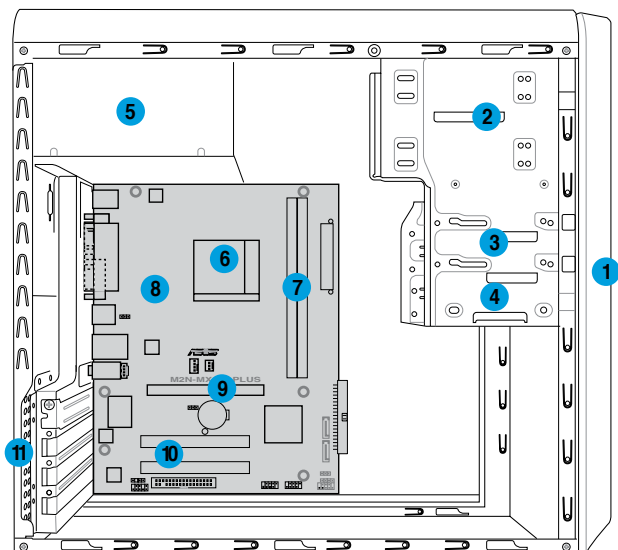
1. Front panel cover
2. 5.25-inch optical drive bays
3. Floppy disk drive bay
4. Hard disk drive bay
5. Power supply unit
6. CPU socket

7. DIMM sockets
8. ASUS motherboard
9. PCI Express x16 slot
10. PCI slots
11. Metal bracket lock

Chapter 2

This chapter provides step-by-step instructions on how to install components in the system.
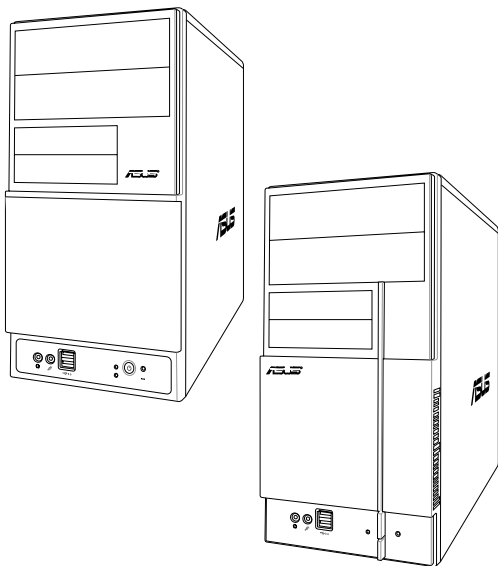
2.1 Preparation

Before you proceed, make sure that you have all the components you plan to install in the system.

Basic components to install

1. Central Processing Unit (CPU)
2. DDR2 Dual Inline Memory Module (DIMM)
3. Expansion card(s)
4. Hard disk drive
5. Optical drive
6. Floppy disk drive

Tool

Phillips (cross) screw driver

2.2 Before you proceed

Take note of the following precautions before you install components into the system.

- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.

- Hold components by the edges to avoid touching the ICs on them.

- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.

The motherboard comes with an onboard standby power LED. This LED lights up to indicate that the system is ON, in sleep mode or in soft-off mode, and not powered OFF. Unplug the power cable from the power outlet and make sure that the standby power LED is OFF before installing any system component.

SB_PWR

ON
Standby
Power

OFF
Powered
Off

Onboard LED
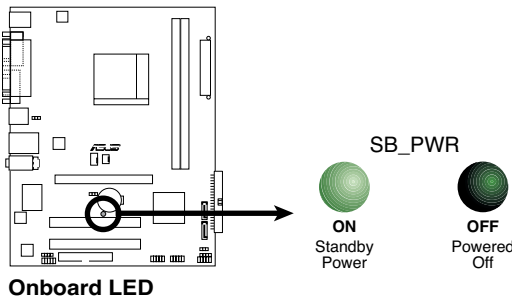
2.3   Removing the side cover and front panel assembly

1. Remove the cover screws on the rear panel.
2. Pull the side cover toward the rear panel until its hooks disengage from the chassis tab holes. Set the side cover aside.
3. Locate the front panel assembly hooks, then lift them until they disengage from the chassis.
4. Swing the front panel assembly to the right, until the hinge-like tabs on the right side of the assembly are exposed.
5. Remove the front panel assembly, then set aside.

Air duct

Chassis tab holes
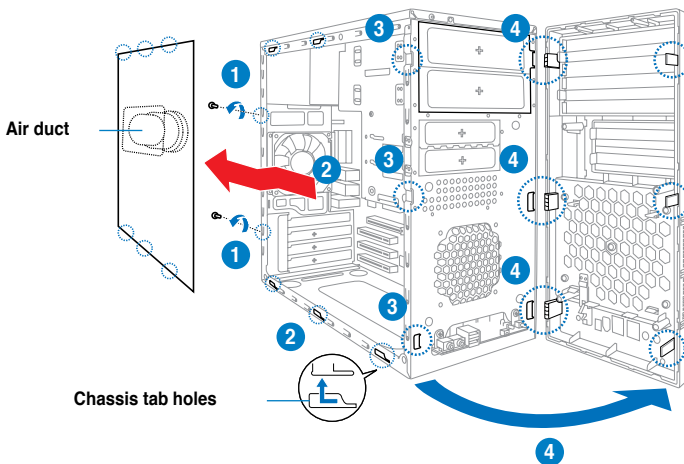
2.4   Central Processing Unit (CPU)

The motherboard comes with a 940-pin AM2+ socket designed for the AMD Athlon™ 64 X2/Athlon™ 64/Sempron™ processor.

The AM2+ socket has a different pinout from the 940-pin socket designed for the AMD Opteron™ processor. Make sure you use a CPU is designed for the AM2+ socket. The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

AM2+ socket is backward compatible with AM2 socket.

2.4.1   Installing the CPU

To install a CPU:

1.   Locate the CPU socket on the motherboard.
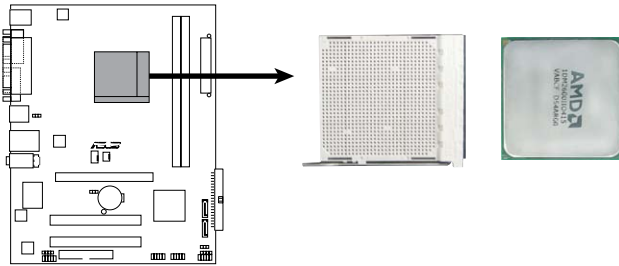
CPU Socket AM2+

2.   Unlock the socket by pressing the lever sideways, then lift it up to a 90º angle.
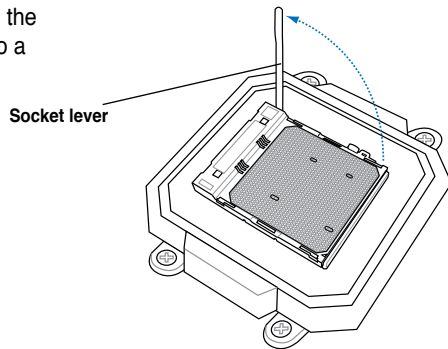
Socket lever

Make sure that the socket lever is lifted up to a 90º angle; otherwise, the CPU will not fit in completely.

3.	Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.

4.	Carefully insert the CPU into the socket until it fits in place.

Please make sure your CPU is fully plugged-in to reduce abnormal symptom.
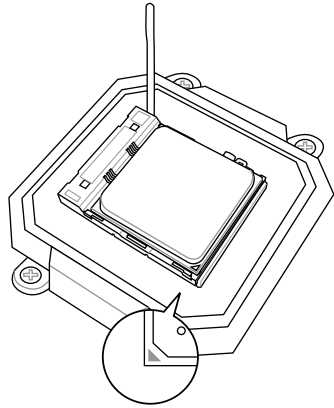
5.	When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

6.	Install a CPU heatsink and fan following the instructions that came with the heatsink package.
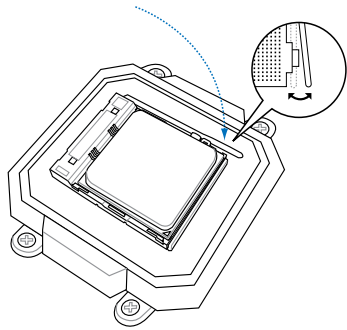
2.4.2   Installing the heatsink and fan

Make sure that you use only AMD-certified heatsink and fan assembly.

Follow these steps to install the CPU heatsink and fan.

1.   Place the heatsink on top of the installed CPU, making sure that the heatsink fits properly on the retention module base.

• The retention module base is already installed on the motherboard upon purchase.

• You do not have to remove the retention module base when installing the CPU or installing other motherboard components.

• If you purchased a separate CPU heatsink and fan assembly, make sure that a Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.
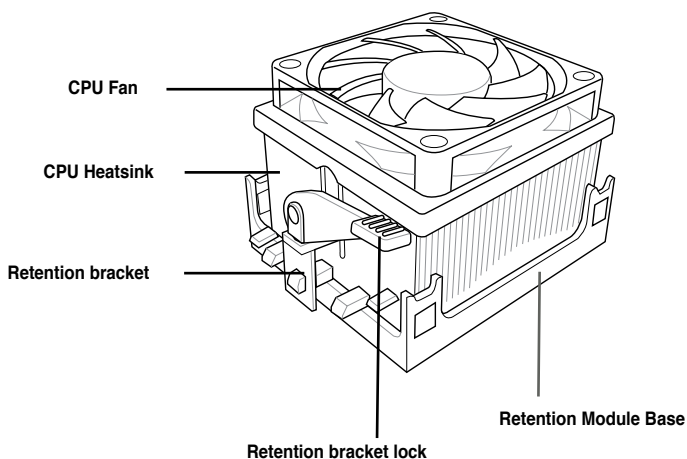
Your boxed CPU heatsink and fan assembly should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.

2. Attach one end of the retention bracket to the retention module base.
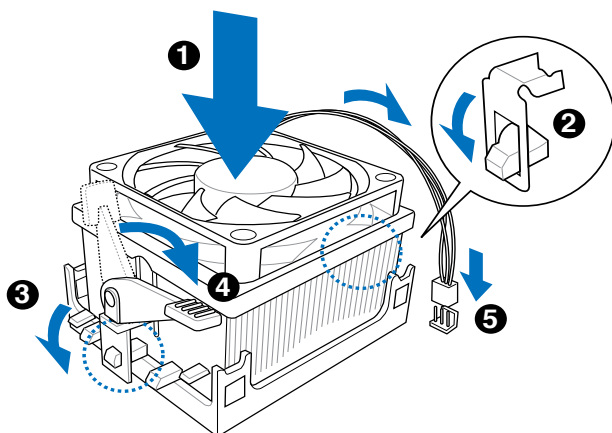
3. Align the other end of the retention bracket (near the retention bracket lock) to the retention module base. A clicking sound denotes that the retention bracket is in place.

Make sure that the fan and heatsink assembly perfectly fits the retention mechanism module base, otherwise you cannot snap the retention bracket in place.

4. Push down the retention bracket lock on the retention mechanism to secure the heatsink and fan to the module base.

5. When the fan and heatsink assembly is in place, connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.

Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

2.5 Installing a DIMM

The system motherboard comes with four Double Data Rate 2 (DDR2) Dual Inline Memory Module (DIMM) sockets.

The following figure illustrates the location of the sockets:
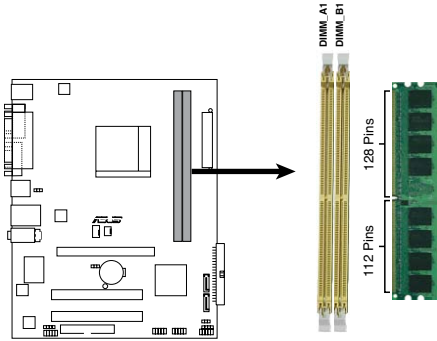
240-pin DDR2 DIMM Sockets

Channel	Sockets
Channel A	DIMM_A1
Channel B	DIMM_B1

2.5.1 Memory configurations

You may install 256 MB, 512 MB, 1 GB, and 2 GB unbuffered non-ECC DDR2 DIMMs into the DIMM sockets.

Recommended Memory Configurations

Mode	Sockets	
	DIMM_A1	DIMM_B1
Single-channel	Installed	
		Installed
Dual-channel	Installed	Installed

• For dual-channel memory configuration, you may install identical DIMMs in all two sockets.

• Always use identical DDR2 DIMM pairs for dual-channel model. For optimum compatibility, we recommend that you obtain memory modules from the same vendor. Visit the ASUS website (www.asus.com) for the latest Qualified Vendors List.

Qualified Vendors Lists (QVL)

DDR2-1066

Size	Vendor	Model	CL	Brand	Side(s)	Component	DIMM support A*	B*
512MB	Kingston	KHX8500D2/512	N/A	Kingston	SS	Heat-Sink Package	•	•
512MB	Kingston	KHX8500D2K2/1GN	N/A	Kingston	SS	Heat-Sink Package	•	•
1G	Kingston	KHX8500D2K2/2GN	N/A	Kingston	SS	Heat-Sink Package	•	•
1G	Apacer	78.0AG9S.BN4	5	Apacer	DS	Heat-Sink Package	•	•
1G	Corsair	CM2X1024-8500C5	N/A	Corsair	DS	Heat-Sink Package	•	•
1G	Corsair	CM2X1024-8500C5D	5	Corsair	DS	Heat-Sink Package	•	•
512MB	ADATA	M2OMIDG3H3160INC5Z	5	ADATA	SS	Heat-Sink Package	•	•
512MB	AENEON	AXT660UD00-19DC97X	5	AENEON	SS	Heat-Sink Package	•	•
1G	AENEON	AXT760UD00-19DC97X	5	AENEON	DS	Heat-Sink Package	•	•
1G	OCZ	OCZ2N1066SR2DK	N/A	OCZ	DS	Heat-Sink Package	•	•
1G	OCZ	OCZ2N10662GK	N/A	OCZ	DS	Heat-Sink Package	•	•
512MB	Kingbox	EP512D21066PS	N/A	Micron	SS	6QD22D9GCT	•	•

DDR2-800

Size	Vendor	Model	CL	Brand	Side(s)	Component	DIMM support A*	B*
1G	Kingston	KHX6400D2LL/1G	N/A	Kingston	DS	Heat-Sink Package	•	•
512MB	Kingston	KHX6400D2LLK2/1GN	N/A	Kingston	SS	Heat-Sink Package	•	•
1G	Kingston	KHX6400D2K2/2G	N/A	Kingston	DS	Heat-Sink Package	•	•
512MB	Samsung	KR M378T6553CZ3-CE7	N/A	Samsung	SS	K4T51083QC-ZCE7	•	•
1G	Samsung	KR M378T2953CZ3-CE7	N/A	Samsung	DS	K4T51083QC-ZCE7	•	•
512MB	Samsung	KR M391T6553CZ3-CE7	N/A	Samsung	SS	K4T51083QC-ZCE7(ECC)	•	•
1G	Samsung	KR M391T2953CZ3-CE7	N/A	Samsung	DS	K4T51083QC-ZCE7(ECC)	•	•
512MB	Qimonda	HYS64T64000EU-2.5-B2	6	Qimonda	SS	HYB18T512800B2F25FSS28380	•	•
1G	Qimonda	HYS64T128020EU-2.5-B2	6	Qimonda	DS	HYB18T512800B2F25FSS28380	•	•
512MB	Micron	MT9HTF6472AY-80ED4	5	Micron	SS	6ED22D9GKX(ECC)	•	•
1G	Micron	MT18HTF12872AY-80ED4	5	Micron	DS	6TD22D9GKX(ECC)	•	•
1G	Corsair	CM2X1024-6400	5	Corsair	DS	Heat-Sink Package	•	•
1G	Corsair	XMS2-6400	4	Corsair	DS	Heat-Sink Package	•	•
1G	Corsair	XMS2-6400	5	Corsair	DS	Heat-Sink Package	•	•
512MB	HY	HYMP564U64AP8-S6 AA	N/A	Hynix	SS	HY5PS12821AFP-S6	•	•
512MB	HY	HYMP564U64BP8-S5 AB	N/A	Hynix	SS	HY5PS12821BFP-S5	•	•
512MB	HY	HYMP564U64CP8-S5 AB	5	Hynix	SS	HY5PS12821CFP-S5	•	•
1G	HY	HYMP512U64AP8-S6 AA	N/A	Hynix	DS	HY5PS12821AFP-S6	•	•
1G	HY	HYMP512U64BP8-S5 AB	N/A	Hynix	DS	HY5PS12821BFP-S5	•	•
1G	HY	HYMP512U64CP8-S5 AB	5	Hynix	DS	HY5PS12821CFPS5	•	•
2G	Apacer	AHU02GE800C5N1C	5	Apacer	DS	Heat-Sink Package	•	•
512MB	ADATA	M20AD6G3H3160I1E58	N/A	ADATA	SS	AD29608A8A-25EG80720	•	•
512MB	VDATA	M2GVD6G3H3160I1E53	N/A	VDATA	SS	VD29608A8A-25EG30648	•	•
1G	VDATA	M2GVD6G3I4170I1E53	N/A	VDATA	DS	VD29608A8A-25EG30647	•	•
512MB	PSC	AL6E8E63B-8E1K	5	PSC	SS	A3R12E3HEF641B9A05	•	•
1G	PSC	AL7E8E63B-8E1K	5	PSC	DS	A3R12E3HEF641B9A05	•	•

DDR2-667

Size	Vendor	Model	CL	Brand	Side(s)	Component	DIMM support A*	DIMM support B*
256MB	Kingston	KVR667D2N5/256	N/A	Infineon	SS	HYB18T256800AF3SW65 33154	•	•
512MB	Kingston	KVR667D2N5/512	N/A	Elpida	SS	E5108AGBG-6E-E	•	•
1G	Kingston	KVR667D2N5/1G	N/A	Kingston	DS	D6408TEBGGL3U	•	•
1G	Kingston	KVR667D2N5/1G	N/A	Elpida	DS	E5108AGBG-6E-E	•	•
512MB	Samsung	KR M378T6553CZ0-CE6	N/A	Samsung	SS	K4T51083QC	•	•
512MB	Samsung	KR M378T6453FZ0-CE6	N/A	Samsung	DS	K4T56083QF-ZCE6	•	•
512MB	Samsung	M378T6553CZ3-CE6	N/A	Samsung	SS	K4T51083QC-ZCE6	•	•
1G	Samsung	M378T2953CZ3-CE6	N/A	Samsung	DS	K4T51083QC-ZCE6	•	•
1G	Samsung	KR M378T2953CZ0-CE6	N/A	Samsung	DS	K4T51083QC-ZCE6	•	•
512MB	Qimonda	HYS64T64000EU-3S-B2	5	Qimonda	SS	HYB18T512B00B2F3SFSS28171	•	•
1G	Qimonda	HYS64T128020EU-3S-B2	5	Qimonda	DS	HYB18T512B00B2F3SFSS28171	•	•
2G	Qimonda	HYS64T256020EU-3S-B	5	Qimonda	DS	HTB18T1G800BF-3S3VV10907	•	•
512MB	Corsair	VS512MB667D2	N/A	Corsair	SS	64M8CFEGPS0900647	•	•
512MB	Corsair	VS512MB667D2	N/A	Corsair	DS	MIII0052532M8CEC	•	•
1G	Corsair	VS1GB667D2	N/A	Corsair	DS	MID095D62864M8CEC	•	•
1G	Corsair	XMS2-5400	4	Corsair	DS	Heat-Sink Package	•	•
256MB	HY	HYMP532U64CP6-Y5 AB	5	Hynix	SS	HY5PS121621CFP-Y5	•	•
512MB	HY	HYMP564U64AP8-Y4 AA	N/A	Hynix	SS	HY5PS12821AFP-Y4	•	•
512MB	HY	HYMP564U64AP8-Y5 AA	N/A	Hynix	SS	HY5PS12821AFP-Y5	•	•
512MB	HY	HYMP564U72AP8-Y4	N/A	Hynix	SS	HY5PS12821AFP-Y4(ECC)	•	•
512MB	HY	HYMP564U72AP8-Y5	N/A	Hynix	SS	HY5PS12821AFP-Y5(ECC)	•	•
1G	HY	HYMP512U72AP8-Y5	N/A	Hynix	DS	HY5PS12821AFP-Y5(ECC)	•	•
1G	HY	HYMP512U64AP8-Y5 AB	N/A	Hynix	DS	HY5PS12821AFP-Y5	•	•
1G	HY	HYMP512U64CP8-Y5 AB	5	Hynix	DS	HY5PS12521CFP-Y5	•	•
512MB	Kingmax	KLCC28F-A8EB5	N/A	Elpida	SS	E5108AE-6E-E	•	•
512MB	Kingmax	KLCC28F-A8KB5	N/A	Kingmax	SS	KKEA88B4LAUG-29DX	•	•
1G	Kingmax	KLCD48F-A8KB5	N/A	Kingmax	DS	KKEA88B4LAUG-29DX	•	•
512MB	Apacer	78.91092.420	N/A	Elpida	SS	E5108AE-6E-E	•	•
512MB	Apacer	AU512E667C5KBGC	5	Apacer	SS	AM4B5708MIJS7E0627B	•	•
512MB	Apacer	AU512E667C5KBGC	5	Apacer	SS	AM4B5708GQJS7E06332F	•	•
1G	Apacer	AU01GE667C5KBGC	N/A	Apacer	SS	AM4B5708GQJS7E0636B	•	•
1G	Apacer	78.01092.420	5	Elpida	DS	E5108AE-6E-E	•	•
1G	Apacer	AU01GE667C5KBGC	5	Apacer	DS	AM4B5708MIJS7E0627B	•	•
512MB	ADATA	M20EL5G3H3160B1C0Z	N/A	Elpida	SS	E5108AE-6E-E	•	•
512MB	ADATA	M20AD5G3H3166I1C52	N/A	ADATA	SS	AD29608A8A-3EG20648	•	•
512MB	ADATA	M20AD5G3H3166I1C52	N/A	ADATA	SS	AD29608A8A-3EG20718	•	•
1G	ADATA	M2OAD5G3I4176I1C52	N/A	ADATA	DS	AD29608A8A-3EG20645	•	•
512MB	VDATA	M2GVD5G3H31A4I1C52	N/A	VDATA	SS	VD29608A8A-3EC20615	•	•
512MB	VDATA	M2YVD5G3H31P4I1C52	N/A	VDATA	SS	VD29608A8A-3EG20627	•	•
512MB	VDATA	M2GVD5G3H166I1C52	N/A	VDATA	SS	VD29608A8A-3EG20637	•	•
1G	VDATA	M2GVD5G3I41P6I1C52	N/A	VDATA	DS	VD29608A8A-3EG20627	•	•
1G	VDATA	M2GVD5G3I41C4I1C52	N/A	VDATA	DS	VD29608A8A-3EC20620	•	•
1G	VDATA	M2GVD5G3I4176I1C52	N/A	VDATA	DS	VD29608A8A-3EG20641	•	•
512MB	PSC	AL6E8E63B-6E1K	5	PSC	SS	A3R12E3GEF637BLC5N	•	•
512MB	PSC	AL6E8E63J-6E1	5	PSC	SS	A3R12E3JFF717B9A00	•	•
1G	PSC	AL7E8E63B-6E1K	5	PSC	DS	A3R12E3GEF637BLC5N	•	•
1G	PSC	AL7E8E63J-6E1	5	PSC	DS	A3R12E3JFF717B9A01	•	•
256MB	Nanya	NT256T64UH4A1FY-3C	N/A	Nanya	SS	NT5TU32M16AG-3C	•	•
512MB	Nanya	NT512T64U88A1BY-3C	N/A	Nanya	SS	NT5TU64M8AE-3C	•	•

DDR2-533

Size	Vendor	Model	CL	Brand	Side(s)	Component	DIMM support	
							A*	B*
512MB	Kingston	KVR533D2N4/512	N/A	Infineon	SS	HYB18T512800AF3733336550	•	•
1G	Kingston	KVR533D2N4/1G	N/A	Kingston	DS	D6408TLRAGL37U	•	•
256MB	Samsung	M378T3253FG0-CD5	N/A	Samsung	SS	K4T56083QF-GCD5	•	•
512MB	Samsung	M378T6553BG0-CD5	4	Samsung	SS	K4T51083QB-GCD5	•	•
256MB	HY	HYMP532U64CP6-C4 AB	4	Hynix	SS	HY5PS121621CFP-C4	•	•
1G	HY	HYMP512U64CP8-C4 AB	4	Hynix	DS	HY5PS12821CFP-C4	•	•
512MB	Micron	MT 16HTF6464AG-53EB2	4	Micron	SS	D9BOM	•	•
512MB	Micron	MT 16HTF6464AG-53EB2	4	Micron	DS	Z9BQT	•	•
1G	Micron	MT 16HTF12864AY-53EA1	4	Micron	DS	D9CRZ	•	•
512MB	Corsair	VS512MB533D2	N/A	Corsair	DS	MIII0052532M8CEC	•	•
512MB	Corsair	VS512MB533D2	N/A	Corsair	DS	MI110052532M8CEC	•	•
1G	Corsair	VS1GB533D2	N/A	Corsair	DS	64M8CFEGQIB0900718	•	•
512MB	Elpida	EBE51UD8ABFA-5C-E	N/A	Elpida	SS	E5108AB-5C-E	•	•
512MB	Transcend	512MB DDR2 533 ECC	N/A	Micron	SS	6ND22D9GCT(ECC)	•	•
512MB	Kingmax	KLBC28F-A8KB4	N/A	Kingmax	SS	KKEA88B4IAK-37	•	•
256MB	Kingmax	KLBB68F-36EP4	N/A	Elpida	SS	E5116AB-5C-E	•	•
512MB	Kingmax	KLBC28F-A8EB4	N/A	Elpida	SS	E5108AE-5C-E	•	•
512MB	ADATA	M2OAD2G3H3166I1B52	N/A	ADATA	SS	AD29608A8A-37DG20719	•	•
2G	ADATA	M20AD2H3J4170I1B53	N/A	ADATA	DS	AD20908A8A-37DG30721	•	•

Side(s): SS - Single-sided   **DS** - Double-sided

CL: CAS Latency

DIMM support:

A   -   Supports one module inserted into either slot, in Single-channel memory configuration.

B   -   Supports one pair of modules inserted into both slots as one pair of Dual-channel memory configuration.

2.5.2   Installing a DDR2 DIMM

Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

1.   Unlock a DDR2 DIMM socket by pressing the retaining clips outward.

2.   Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.

DDR2 DIMM notch

Unlocked retaining clip
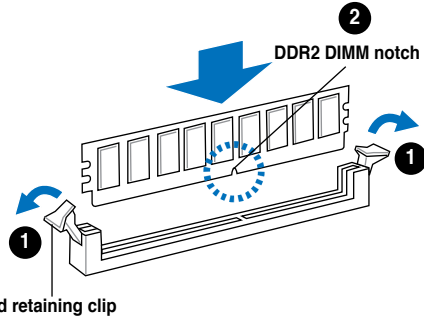
A DDR2 DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

3.   Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.

Locked Retaining Clip
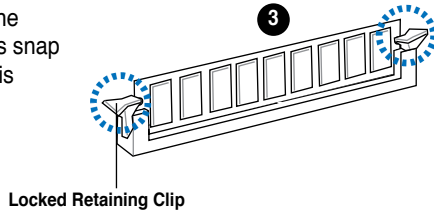
2.5.3   Removing a DDR2 DIMM

Follow these steps to remove a DIMM.

1.   Simultaneously press the retaining clips outward to unlock the DIMM.

DDR2 DIMM notch
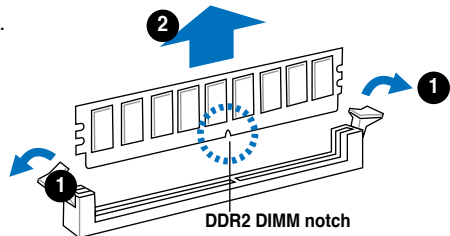
Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2.   Remove the DIMM from the socket.

2.6 Expansion slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

PCI Express Graphics Slot supports most of the ATi® and NVDIA® graphics cards, except some ATi® graphics cards of old version, such as ATi® X300, X550, X700, and X800 series.

2.6.1 Installing an expansion card

To install an expansion card:

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

2.6.2 Configuring an expansion card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 5 for information on BIOS setup.
2. Assign an IRQ to the card. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

Standard interrupt assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	–	Re-direct to IRQ#9
3	11	IRQ holder for PCI steering*
4	12	Communications Port (COM1)*
5	13	IRQ holder for PCI steering*
6	14	Floppy Disk Controller
7	15	Printer Port (LPT1)*
8	3	System CMOS/Real Time Clock
9	4	IRQ holder for PCI steering*
10	5	IRQ holder for PCI steering*
11	6	IRQ holder for PCI steering*
12	7	PS/2 Compatible Mouse Port*
13	8	Numeric Data Processor
14	9	Primary IDE Channel
15	10	Secondary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

IRQ assignments for this motherboard

	A	B	C	D
PCI slot 1	used	—	—	—
PCI slot 2	—	used	—	—

When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

2.6.3   PCI slots

The PCI slots support cards such as
a LAN card, SCSI card, USB card,
and other cards that comply with PCI
specifications. The figure shows a LAN
card installed on a PCI slot.
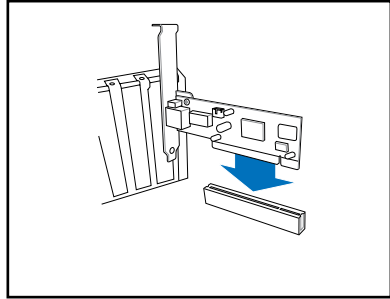
2.6.4   PCI Express x1 slot

This motherboard supports PCI Express
x1 network cards, SCSI cards and
other cards that comply with the PCI
Express specifications. The figure shows
a network card installed on the PCI
Express x1 slot.
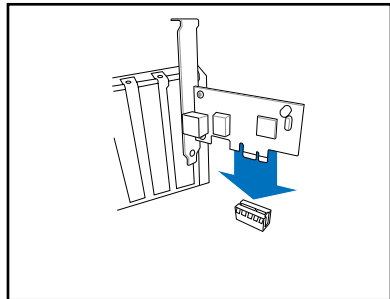
2.6.5   PCI Express x16 slot

This motherboard supports PCI Express
x16 graphic cards that comply with the
PCI Express specifications. The figure
shows a graphics card installed on the
PCI Express x16 slot.
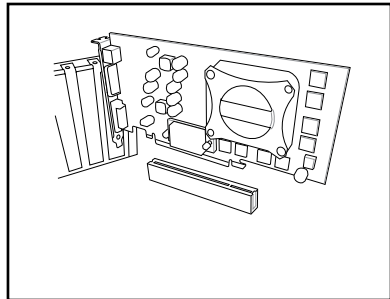
2.7 Installing an optical drive

Refer to the instructions in this section if you wish to install a new optical drive.

Follow these steps to install an optical drive:

1. Place the chassis upright.
2. Remove the drive slot metal plate cover.
3. Insert the optical drive into the upper 5.25-inch drive bay and carefully push the optical drive into the bay until its screw holes align with the holes on the bay as shown.
4. Secure the optical drive with two screws on both sides of the bay.
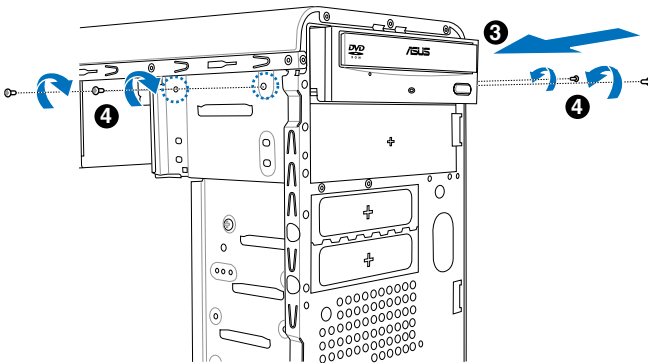
5. Connect a power cable from the power supply to the power connector at the back of the optical drive.

6. Connect one end of the IDE ribbon cable to the IDE interface at the back of the optical drive, matching the red stripe on the cable with Pin 1 on the IDE interface.

IDE ribbon cable

Power cable
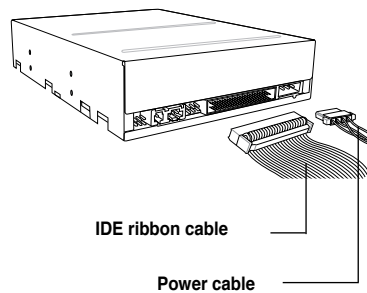
7. Connect the other end of the IDE ribbon cable to the primary IDE connector (labeled PRI_IDE) on the motherboard.
8. Remove the dummy drive slot cover from the front panel.
9. Replace the front panel.

2.8 Installing a hard disk drive

To install a Serial ATA hard disk drive:

1. Carefully place the hard disk into the the lowest 3.5-inch drive slot (without the metal plate cover).
2. Fasten the screws to secure the hard disk to the drive slot.

the lowest 3.5-inch drive slot without the metal plate cover
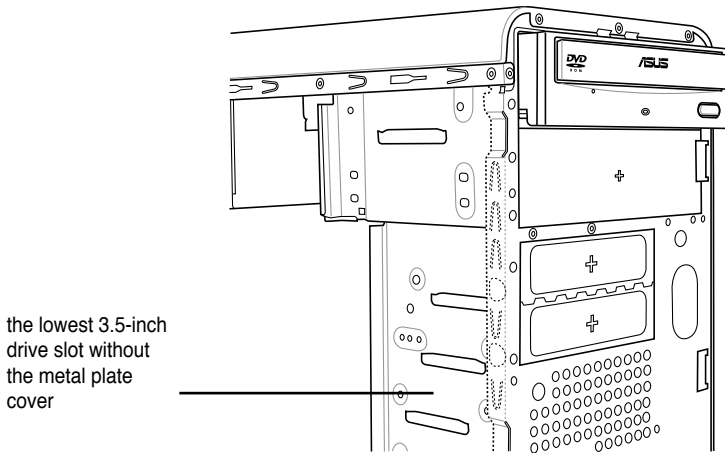
> If you do not need to install the optional card reader into your system, you can install the HDD in the one of the 3.5-inch external bay (with the metal plate cover).

3. Connect one end of the Serial ATA cable to the SATA connector at the back of the drive, then connect the other end to a Serial ATA connector on the motherboard. See page 4-7 for the location of the Serial ATA connectors.

4.   Connect a 15-pin Serial ATA power plug from the power supply unit to the 15-pin power connector at the back of the drive.

- OR -

Connect a 4-pin (female) power plug from the power supply unit to the 4-pin (male) power connector at the back of the drive.

Serial ATA power cable   **Serial ATA cable**
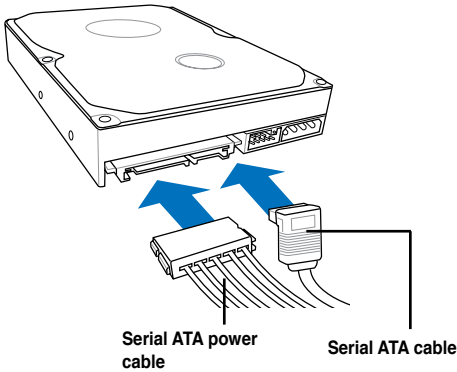
If your Serial ATA HDD has both 4-pin and 15-pin connectors at the back, use either the 15-pin SATA power adapter plug **OR** the legacy 4-pin power connector. **DO NOT** use both to prevent damage to components and to keep the system from becoming unstable.

To install an IDE hard disk drive:

1.   Follow steps 1-2 of the previous section.
2.   Connect the blue interface of the IDE ribbon cable to the primary IDE connector (blue connector labeled PRI_IDE) on the motherboard. See page 4-6 for the location of the connector.

IDE ribbon cable

Power cable
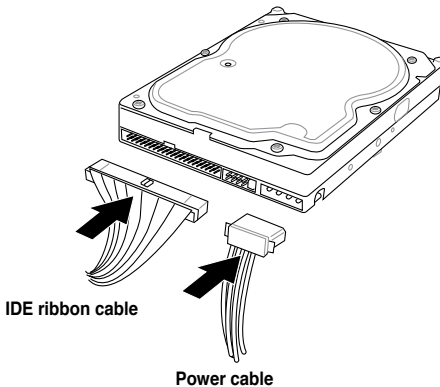
- • If you will install only one hard disk drive, make sure to configure your hard disk drive as Master device before connecting the IDE cable and power plug. Refer to the HDD documentation on how to set the drive as a Master device.

- • If you will install two IDE hard disk drives, configure the other device as Slave.

3. Connect the gray interface of the IDE ribbon cable to the IDE connector on the drive.
4. If you install two IDE hard disk drives, connect the black interface of the IDE ribbon cable to the IDE connector on the second (Slave) IDE hard disk drive.
5. Connect a 4-pin power plug from the power supply unit to the power connector at the back of the drive(s).

2.9   Installing the card reader

An optional card reader module (see the figure below) is available with the system. If you want to install the card reader into your system, follow the steps on the next page.

The card reader is optional and users need to purchase separately.

To install the card reader module:

1.   Remove the drive slot metal plate cover.

2.   Carefully insert the card reader module into the 3.5-inch bay until the screw holes align with the holes on the bay.

3.   Secure the card reader module with two screws on both sides.

remove the metal plate cover and install the card reader module here
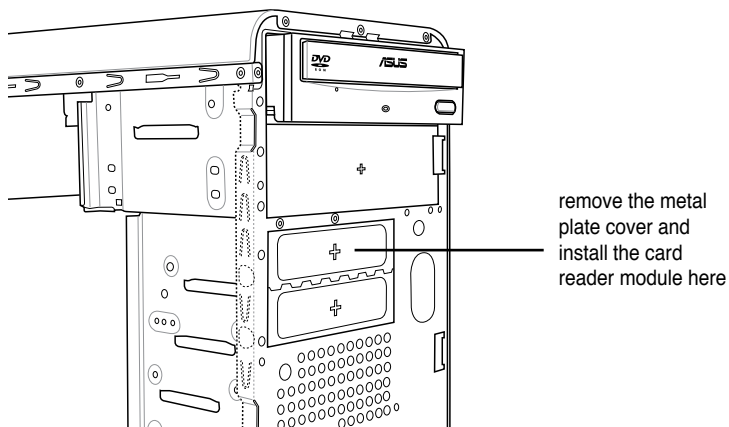
4.   Connect the USB cable of the card reader to the USB connector on the motherboard.

2.10   Installing a floppy disk drive

The V-Series M2NC61P system comes with one 3.25-inch drive bay for a floppy disk drive.

To install a floppy disk drive:

1.   Remove the drive slot metal plate cover.

remove the metal plate cover and install the card reader module here
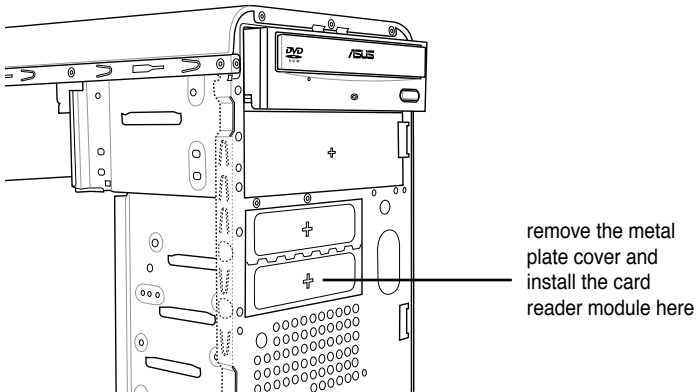
2.   Carefully insert the floppy disk drive into the floppy drive bay until the screw holes align with the holes on the bay.
3.   Secure the floppy disk drive with two screws on both sides.
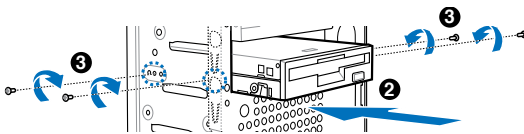
4.   Connect the floppy disk drive signal cable to the signal connector at the back of the drive.

Power cable

Floppy ribbon cable
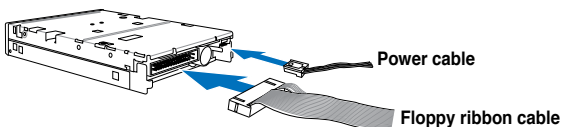
5.   Connect the other end of the signal cable to the floppy disk drive connector on the motherboard. See page 4-5 for the location of the floppy disk drive connector.
6.   Connect a 4-pin power cable from the power supply unit to the power connector at the back of the floppy disk drive.

2.11   Re-connecting cables

You may have disconnected some cables when you were installing components. You must re-connect these cables before you replace the chassis cover.

LED cables

Reset button
HDD LED
Power Switch
Power LED

RST SW
IDE LED
PWR SW
PWR LED
PWR LED

PWR LED   PWR BTN

F_PANEL

HD LED   RESET

System Panel Connector
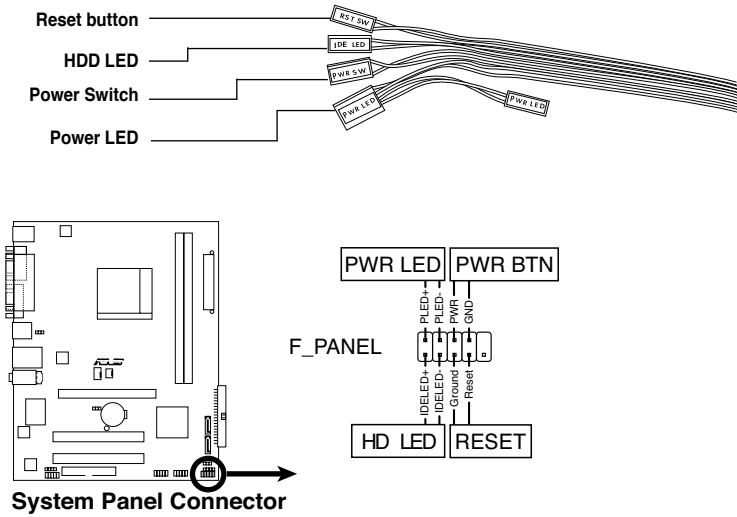
Connect the **reset button**, **power switch**, **power LED**, and **HD LED** cables to their respective leads in the system panel connector on the motherboard.

2.12 Reinstalling the cover

If you installed an optical and/or floppy disk drive, remove the bay cover(s) on the front panel assembly before reinstalling it to the chassis. To do this:

1. Locate the bay cover locks.
2. Press the locks outward to release the bay cover.
3. Push the bay cover inward, then set it aside.
4. Follow the same instructions to remove the 3.5" drive bay cover.
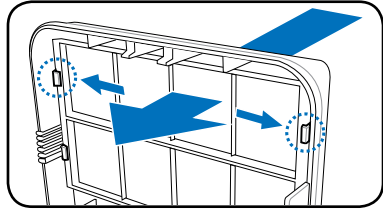
To reinstall the front panel assembly and side cover:

1. Insert the front panel assembly hinge-like tabs to the holes on the right side of the chassis.
2. Swing the front panel assembly to the left, then insert the hooks to the chassis until the front panel assembly fits in place.
3. Insert the six side cover hooks into the chassis tab holes .
4. Push the side cover to the direction of the front panel until it fits in place.
5. Secure the cover with two screws you removed earlier.

⚠️ If the air duct interferes with the CPU fan, adjust the air duct accordingly.

Air duct

Chassis tab holes
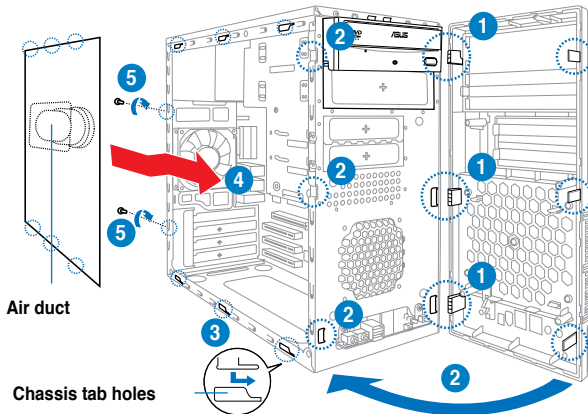
Chapter 3

This chapter helps you power up the system and install drivers and utilities from the support CD.
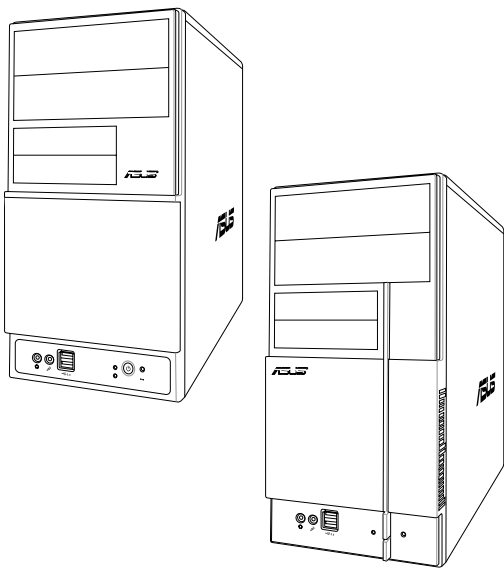
Starting up

3.1 Installing an operating system

The barebone system supports Windows® 2000, 32/64-bit XP, and 32/64-bit Vista operating systems (OS). Always install the latest OS version and corresponding updates so you can maximize the features of your hardware.

Because motherboard settings and hardware options vary, use the setup procedures presented in this chapter for general reference only. Refer to your OS documentation for more information.

- Windows XP OS setup cannot recognize Serial ATA hard drives without the necessary drivers. Use the bundled floppy disk when installing Windows XP OS to a Serial ATA hard drive.
- From the Windows XP setup screen, press F6 when prompted then follow succeeding screen instructions to install the SATA drivers.

3.2 Powering up

Press the system power button (⏻) to enter the OS.

Press to turn ON the system
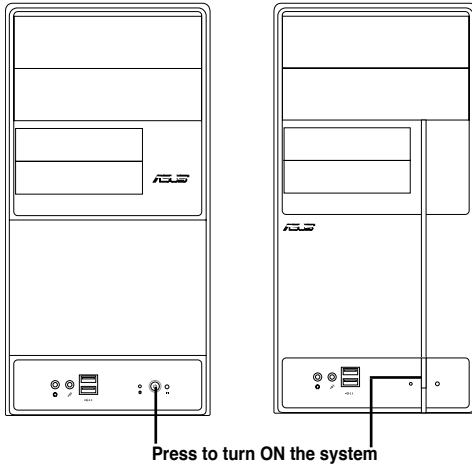
3.3 Support CD information

The support CD that came with the system contains useful software and several utility drivers that enhance the system features.

- Screen display and driver options may not be the same for different operating system versions.
- The contents of the support CD are subject to change at any time without notice. Visit the ASUS website for updates.

3.3.1   Running the support CD

To begin using the support CD, place the CD in your optical drive. The CD automatically displays the **Drivers** menu if Autorun is enabled in your computer.
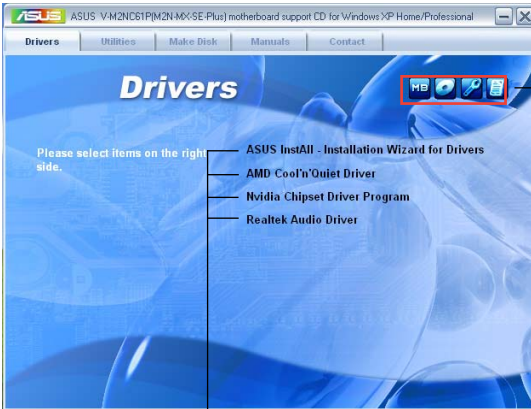
Click an icon to display support CD/DVD/ motherboard information

Click an item to install

If Autorun is NOT enabled in your computer, browse the contents of the support CD/DVD to locate the file ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the CD/DVD.

3.3.2 Drivers menu

The drivers menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices.
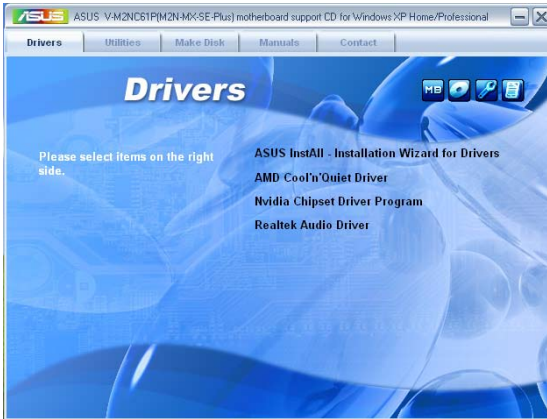
ASUS InstAll - Installation Wizard for Drivers

Launches the ASUS InstallAll driver installation wizard.

AMD Cool 'n' Quiet Driver

Installs the AMD Cool 'n' Quiet driver.

AMD Chipset Driver Program

Installs the AMD chipset driver program.

Realtek Audio Driver

Installs the Realtek® Audio driver.

The screen display and drivers option may not be the same for different operating system versions.

3.3.3 Utilities menu

The Utilities menu shows the applications and other software that the motherboard supports.
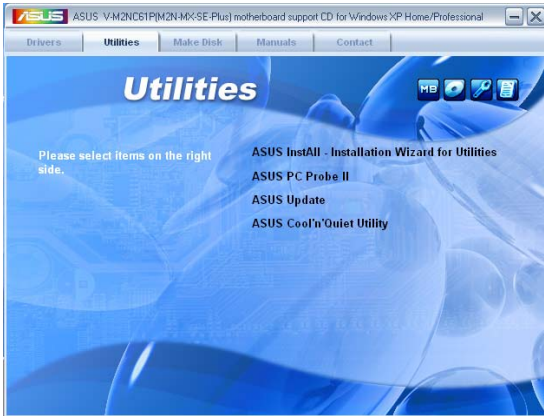
ASUS InstAll - Installation Wizard for Utilities

Launches the ASUS InstallAll utilities installation wizard.

ASUS PC Probe II

This smart utility monitors the fan speed, CPU temperature, and system voltages, and alerts you of any detected problems. This utility helps you keep your computer in healthy operating condition.

ASUS Update

The ASUS Update utility allows you to update the motherboard BIOS in a Windows® environment. This utility requires an Internet connection either through a network or an Internet Service Provider (ISP).

ASUS Cool 'n' Quiet Utility

This item installs the ASUS Cool 'n' Quiet utility.

The screen display and utilities option may not be the same for different operating system versions.

ADOBE Acrobat Reader V7.0

Installs the Adobe® Acrobat® Reader that allows you to open, view, and print documents in Portable Document Format (PDF).

Microsoft DirectX 9.0c

Installs the Microsoft® DirectX® 9.0c driver. The Microsoft DirectX® 9.0c is a multimedia technology that enhances computer graphics and sound. DirectX® improves the multimedia features of you computer so you can enjoy watching TV and movies, capturing videos, or playing games in your computer. Visit the Microsoft website (www.microsoft.com) for updates.

Symantec Norton Internet Security

The anti-virus application detects and protects your computer from viruses that destroys data.

WinDVD Copy5 Trial

Installs the WinDVD Copy5 Trial version.

Corel Snapfire Plus SE

Installs the Corel Snapfire Plus SE software.

3.3.4   Make Disk menu

The Make Disk menu allows you to make a RAID driver disk.

NVIDIA 32bit 2000 SATA RAID Driver

Allows you to create an NVIDIA® 32bit 2000 Serial ATA (SATA) RAID driver disk.

NVIDIA 32bit XP SATA RAID Driver

Allows you to create an NVIDIA® 32bit Serial ATA (SATA) RAID driver disk for Windows® XP Operating System (OS).

NVIDIA 64bit XP SATA RAID Driver

Allows you to create an NVIDIA® 64bit Serial ATA (SATA) RAID driver disk for Windows® XP Operating System (OS).

NVIDIA Vista 32bit SATA RAID Driver

Allows you to create an NVIDIA® 32bit Serial ATA (SATA) RAID driver disk for Windows® Vista Operating System (OS).

NVIDIA Vista 64bit SATA RAID Driver

Allows you to create an NVIDIA® 64bit Serial ATA (SATA) RAID driver disk for Windows® Vista Operating System (OS).

3.3.5   Manual menu

The Manual menu contains a list of supplementary user manuals. Click an item to open the folder of the user manual.

Most user manual files are in Portable Document Format (PDF). Install the Adobe® Acrobat® Reader from the Utilities menu before opening a user manual file.

3.3.6   ASUS Contact information

Click the Contact tab to display the ASUS contact information. You can also find this information on the inside front cover of this user guide.
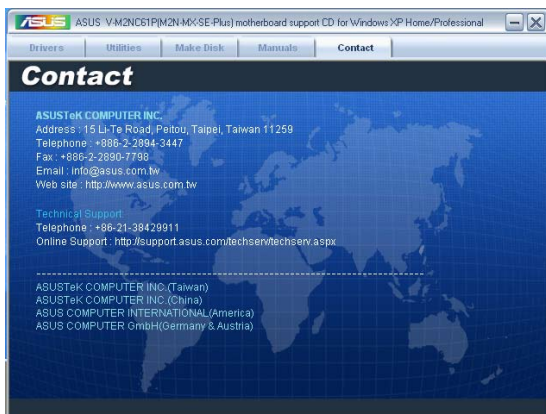
3.4   Software information

Most of the applications in the support CD have wizards that will conveniently guide you through the installation. View the online help or readme file that came with the software for more information.

ASUS PC Probe II

PC Probe II is a utility that monitors the computer's vital components and alerts you of any problem with these components. PC Probe II senses fan rotations, CPU temperature, and system voltages, among others. PC Probe II is software-based, allowing you to start monitoring your computer the moment you turn it on. With this utility, you are assured that your computer is always at a healthy operating condition.

Installing PC Probe II

To install PC Probe II on your computer:

1.   Place the support CD to the optical drive. The **Drivers** installation tab appears if your computer has an enabled Autorun feature.

> If Autorun is not enabled in your computer, browse the contents of the support CD to locate the setup.exe file from the ASUS PC Probe II folder. Double-click the setup.exe file to start installation.

2.   Click the **Utilities** tab, then click **ASUS PC Probe II**.

3.   Follow the screen instructions to complete installation.

Launching PC Probe II

You can launch the PC Probe II right after installation or anytime from the Windows® desktop.

To launch the PC Probe II from the Windows® desktop, click **Start > All Programs > ASUS > PC Probe II**. The PC Probe II main window appears.

After launching the application, the PC Probe II icon appears in the Windows® taskbar. Click this icon to close or restore the application.

Click to close the Preference panel

Using PC Probe II

Main window

The PC Probe II main window allows you to view the current status of your system and change the utility configuration. By default, the main window displays the **Preference** section. You can close or restore the **Preference** section by clicking on the triangle on the main window right handle.

Button	Function
CONFIG	Opens the **Configuration** window
(report icon)	Opens the **Report** window
DMI	Opens the **Desktop Management Interface** window
PCI	Opens the **Peripheral Component Interconnect** window
WMI	Opens the **Windows Management Instrumentation** window
USAGE	Opens the hard disk drive, memory, CPU usage window
◁ ▷	Shows/Hides the **Preference** section
⊖	Minimizes the application
⊗	Closes the application

Sensor alert

When a system sensor detects a problem, the main window right handle turns red, as the illustrations below show.
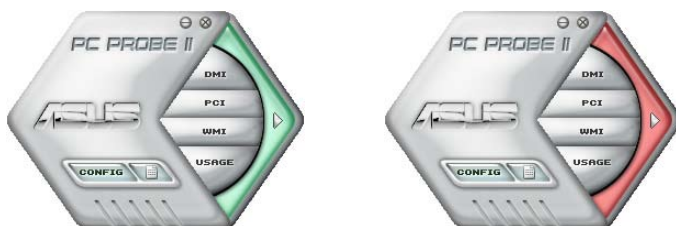
When displayed, the monitor panel for that sensor also turns red. Refer to the **Monitor panels** section for details.

Preferences

You can customize the application using the Preference section in the main window. Click the box before each preference to activate or deactivate.
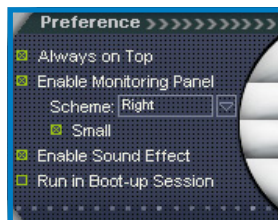
Hardware monitor panels

The hardware monitor panels display the current value of a system sensor such as fan rotation, CPU temperature, and voltages.

The hardware monitor panels come in two display modes: hexagonal (large) and rectangular (small). When you check the **Enable Monitoring Panel** option from the **Preference** section, the monitor panels appear on your computer's desktop.

Large display

Small display

Changing the monitor panels position
To change the position of the monitor panels on the desktop, click the arrow down button of the **Scheme** options, then select another position from the list box. Click **OK** when finished.
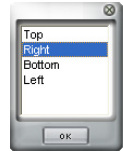
Moving the monitor panels
All monitor panels move together using a magnetic effect. If you want to detach a monitor panel from the group, click the horseshoe magnet icon. You can now move or reposition the panel independently.

Adjusting the sensor threshold value
You can adjust the sensor threshold value in the monitor panel by clicking the arrow buttons. You can also adjust the threshold values using the **Config** window.

You cannot adjust the sensor threshold values in a small monitoring panel.

Click to increase value

Click to decrease value
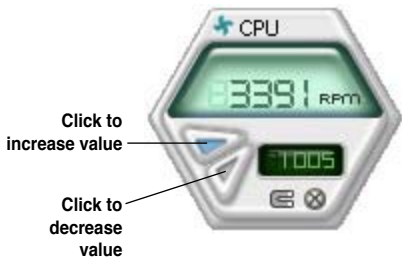
Monitoring sensor alert

The monitor panel turns red when a component value exceeds or is lower than the threshold value. Refer to the illustrations below.

Large display

Small display

WMI browser

Click to display the WMI (Windows Management Instrumentation) browser. This browser displays various Windows® management information. Click an item from the left panel to display on the right panel. Click the plus sign (+) before **WMI Information** to display the available information.
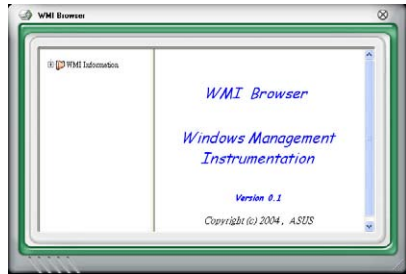
You can enlarge or reduce the browser size by dragging the bottom right corner of the browser.

DMI browser

Click to display the DMI (Desktop Management Interface) browser. This browser displays various desktop and system information. Click the plus sign (+) before **DMI Information** to display the available information.
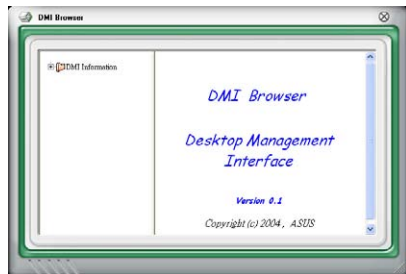
PCI browser

Click ![PCI] to display the PCI
(Peripheral Component Interconnect)
browser. This browser provides
information on the PCI devices
installed on your system. Click the plus
sign (+) before the **PCI Information**
item to display available information.
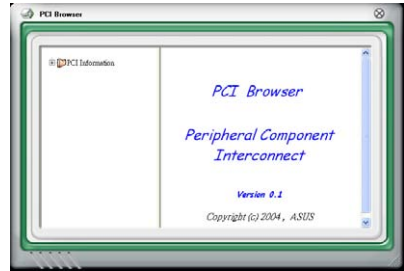
Usage

The **Usage** browser displays real-time information on the CPU, hard disk drive
space, and memory usage. Click ![USAGE] to display the Usage browser.

CPU usage
The **CPU** tab displays real-time CPU
usage in line graph representation.
If the CPU has an enabled Hyper-
Threading, two separate line graphs
display the operation of the two logical
processors.
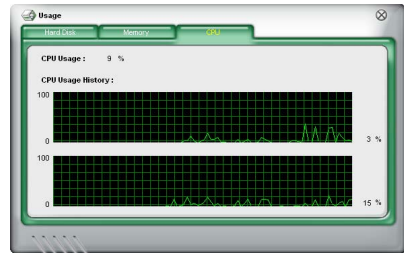
Hard disk drive space usage
The **Hard Disk** tab displays the used
and available hard disk drive space.
The left panel of the tab lists all logical
drives. Click a hard disk drive to display
the information on the right panel. The
pie chart at the bottom of the window
represents the used (blue) and the
available HDD space.
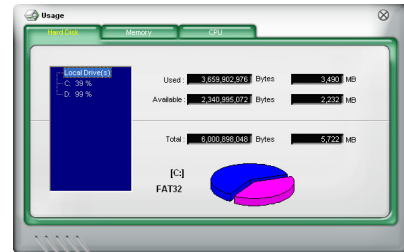
The **Memory** tab shows both used and available physical memory. The pie chart at the bottom of the window represents the used (blue) and the available physical memory.
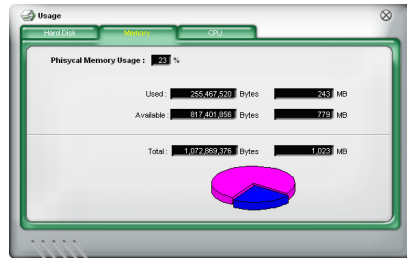
Configuring PC Probe II

Click CONFIG to view and adjust the sensor threshold values.

The **Config** window has two tabs: **Sensor/Threshold** and **Preference**. The **Sensor/Threshold** tab enables you to activate the sensors or to adjust the sensor threshold values. The **Preference** tab allows you to customize sensor alerts, change temperature scale, or enable the Q-Fan feature.

Loads the default threshold values for each sensor

Applies your changes

Cancels or ignores your changes

Loads your saved configuration

Saves your configuration

This chapter gives information about he motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.
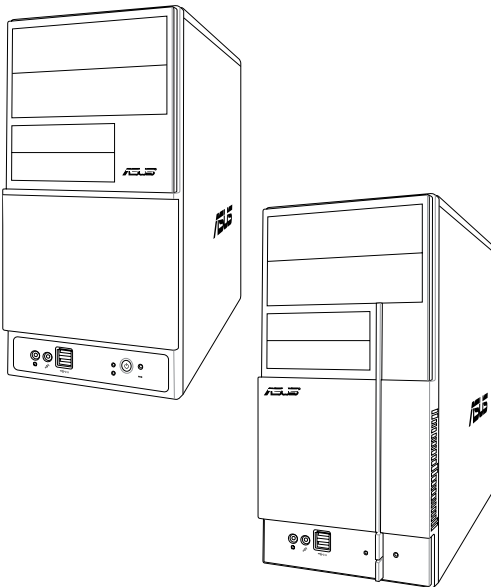
Motherboard introduction

4.1   Introduction

The Vintage V-Series M2NC61P barebone system comes with an ASUS motherboard. This chapter provides technical information about the motherboard for future upgrades or system reconfiguration.

4.2   Motherboard layout
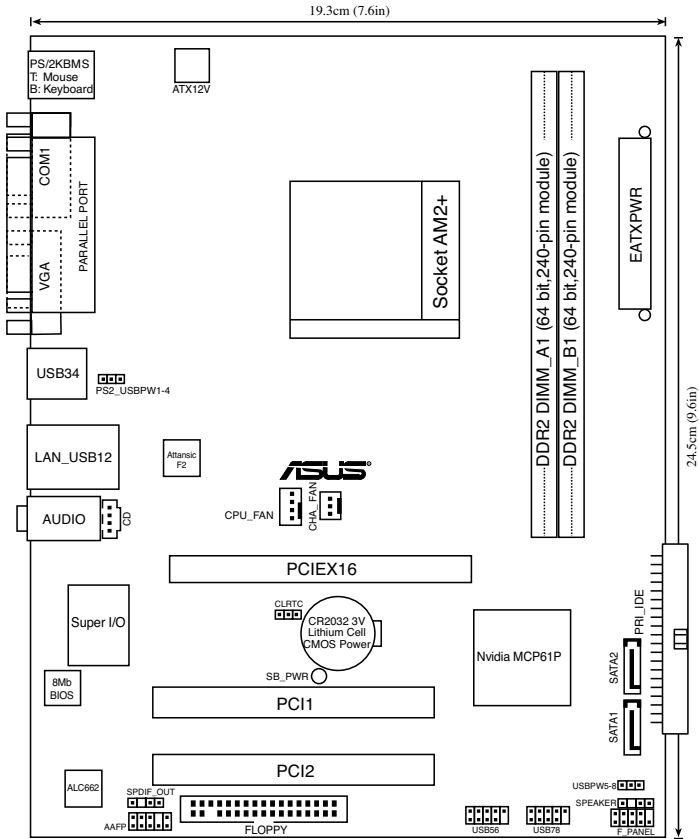
AM2+ socket is backward compatible with AM2 socket.

4.3   Jumpers

1.   Clear RTC RAM (CLRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

1.   Turn OFF the computer and unplug the power cord.
2.   Remove the onboard battery.
3.   Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4.   Re-install the battery.
5.   Plug the power cord and turn ON the computer.
6.   Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

> Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

CLRTC

1 2   2 3

Normal   Clear RTC
(Default)

Clear RTC RAM
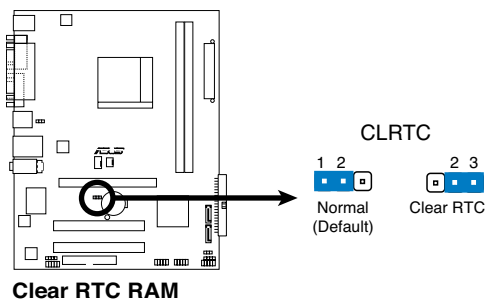
> You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.

2. USB device wake-up (3-pin PS2_USBPW1-4, USBPW5-8)

Set these jumpers to +5V to wake up the computer from S1 sleep mode (CPU stopped, DRAM refreshed, system running in low power mode) using the connected USB devices. Set to +5VSB to wake up from S3 and S4 sleep modes (no power to CPU, DRAM in slow refresh, power supply in reduced power mode).
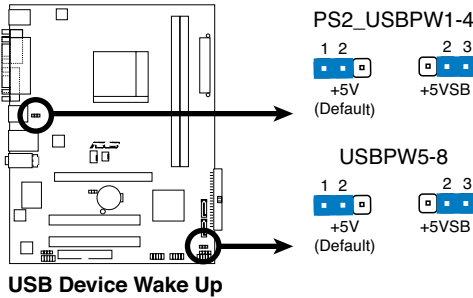
USB Device Wake Up

• The USB device wake-up feature requires a power supply that can provide 500mA on the +5VSB lead for each USB port. Otherwise, the system would not power up.

• The total current consumed must NOT exceed the power supply capability (+5VSB) whether under normal condition or in sleep mode.

4.4 Connectors

1.   Floppy disk drive connector (34-1 pin FLOPPY)

This connector is for the provided floppy disk drive (FDD) signal cable. Insert one end of the cable to this connector, then connect the other end to the signal connector at the back of the floppy disk drive.

> Pin 5 on the connector is removed to prevent incorrect cable connection when using an FDD cable with a covered Pin 5.

FLOPPY

PIN 1

NOTE: Orient the red markings on the floppy ribbon cable to PIN 1.

Floppy Disk Drive Connector
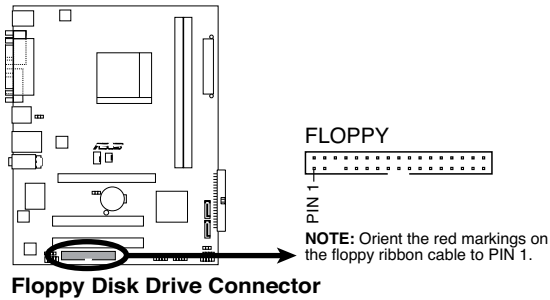
2. IDE connectors (40-1 pin PRI_IDE)

The onboard IDE connectors are for Ultra DMA 100/66/33 signal cables. There are three connectors on each Ultra DMA 100/66/33 signal cable: blue, black, and gray. Connect the blue connector to the motherboard's IDE connector, then select one of the following modes to configure your device(s).

IDE Connector

PRI_IDE
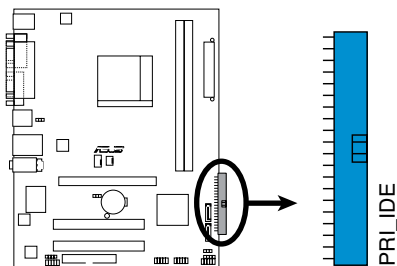
	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master Slave	Black Gray
	Master Slave	Master Slave	Black or gray

> • Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.
>
> • Use the 80-conductor IDE cable for Ultra DMA 100/66/33 IDE devices.

> If any device jumper is set as "Cable-Select," make sure all other device jumpers have the same setting.

3. Serial ATA connectors (7-pin SATA1, SATA2)

These connectors are for the Serial ATA signal cables for Serial ATA 3.0 Gb/s hard disk and optical disk drives. The Serial ATA 3 Gb/s is backward compatible with Serial ATA 1.5Gb/s specification.

The current Serial ATA I interface allows up to 150 MB/s data transfer rate while Serial ATA II allows up to 300 MB/s data transfer rate, faster than the standard parallel ATA with 133 MB/s (Ultra DMA133).

If you install Serial ATA hard disk drives, you can create a RAID 0, RAID 1, and JBOD configuration through the onboard NVIDIA® MediaShield™ controller.
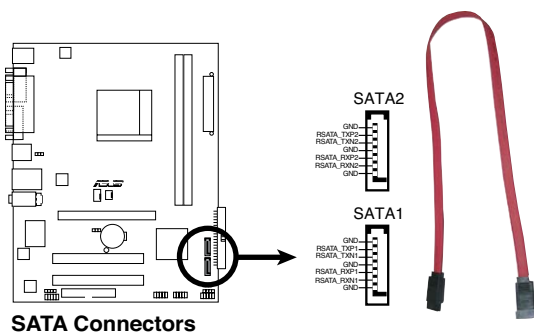
SATA Connectors

Install the Windows® 2000 Service Pack 4 or the Windows® XP Service Pack1 before using Serial ATA.

- For detailed instructions on how to configure RAID 0, 1, and JBOD, refer to the RAID manual in the support CD.

- The RAID function of these connectors is set to [Disabled] by default. If you intend to create a Serial ATA RAID set using these connectors, enable the **nVidia RAID Function** item in the IDE Configuration sub-menu in the BIOS. See section "5.3.4 IDE Configuration" for details.

---

4. **CPU and Chassis Fan connectors (4-pin CPU_FAN, 3-pin CHA_FAN)**

    The fan connectors support cooling fans of 350mA~740mA (8.88W max.) or a total of 1A~2.22A (26.64W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.

    > Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! DO NOT place jumper caps on the fan connectors.

    > Only CPU Fan connector supports Q-Fan function.

CPU_FAN CHA_FAN

CPU FAN PWM
CPU FAN IN
CPU FAN PWR
GND

Rotation
+12V
GND
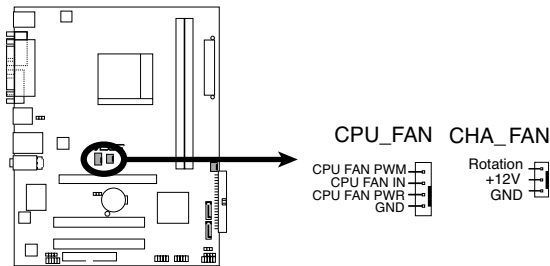
Fan Connectors

5. **Digital audio connector (4-1 pin SPDIF_OUT)**

    This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port(s). Connect the S/PDIF module cable to this connector, then install the module to a slot opening at the back of the system chassis.

    > The S/PDIF module is purchased separately.

+5V
SPDIFOUT
GND

SPDIF_OUT
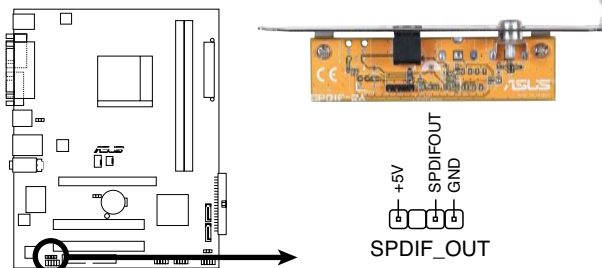
Digital Audio Connector

6. USB connectors (10-1 pin USB56, USB78)

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.

USB56   USB78
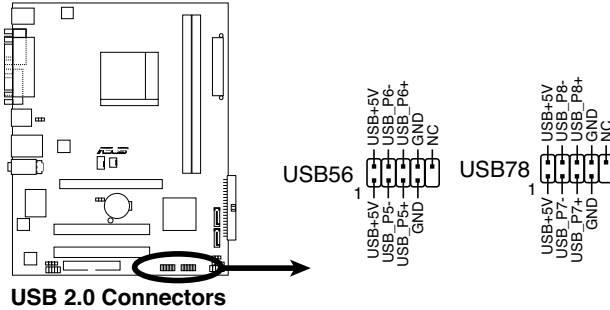
USB 2.0 Connectors

⚠️ Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

📝 The USB 2.0 module is purchased separately.

7. Optical drive audio in connector (4-pin CD)

These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, TV tuner, or MPEG card.

CD
(black)

Right Audio Channel
Ground
Ground
Left Audio Channel

PLUS Internal Audio Connector
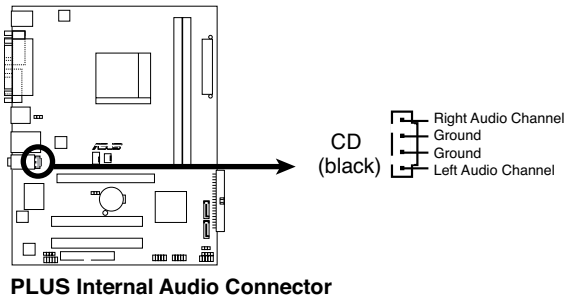
8. **Front panel audio connector (10-1 pin AAFP)**

   This connector is for a chassis-mounted front panel audio I/O module that supports either High Definition Audio or AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.

Front Panel Audio Connector

Azalia-compliant pin definition

Legacy AC'97-compliant pin definition

AAFP
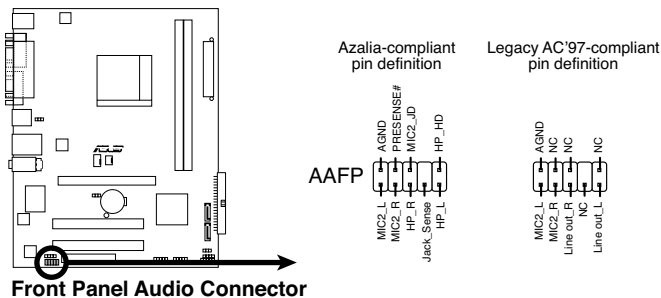
- We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard high-definition audio capability.

- By default, this connector is set to HD Audio. If you want to connect a High Definition front panel audio module to this connector, set the **Front Panel Select** item in the BIOS to [HD Audio]. See section "5.4.2 Chipset" for details.

9. **Speaker connector (4-pin SPEAKER)**

   This connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

SPEAKER

+5V
GND
GND
Speaker Out

Speaker Out Connector
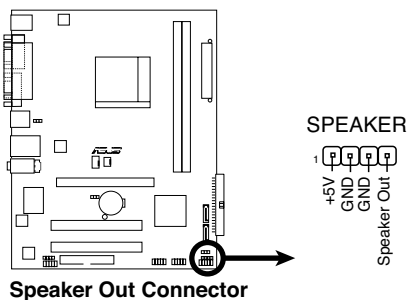
10. ATX power connectors (24-pin EATXPWR, 4-pin ATX12V)

These connectors are for ATX power supply plugs. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

ASUS warranty service does not cover the damage if you replace the Power Supply Unit.

EATX12V

+12V DC — +12V DC
GND — GND

EATXPWR

+3 Volts	Ground
+12 Volts	+5 Volts
+12 Volts	+5 Volts
+5V Standby	+5 Volts
Power OK	-5 Volts
Ground	Ground
+5 Volts	Ground
Ground	Ground
+5 Volts	PSON#
Ground	Ground
+3 Volts	-12 Volts
+3 Volts	+3 Volts

ATX Power Connector
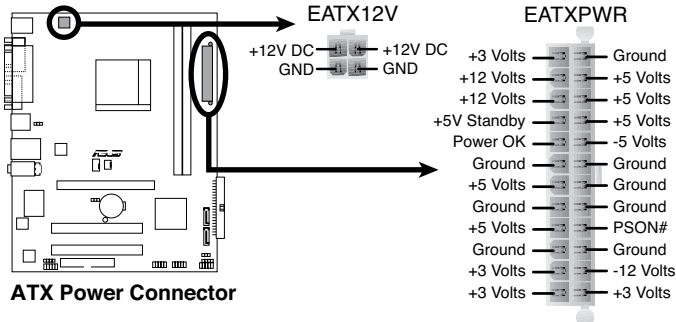
11. System panel connector (10-1 pin F_PANEL)

This connector supports several chassis-mounted functions.

System Panel Connector
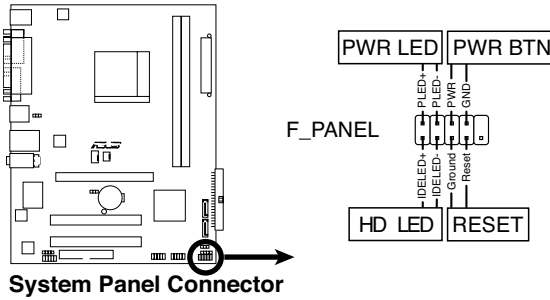
- **System power LED (2-pin PWRLED)**
  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED (2-pin +HDLED)**
  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

- **AXT Power/Soft-off button (2-pin PWRBTN)**
  This connector is for the system power button. Pressing the power button turns the system ON or puts the system in SLEEP or SOFT-OFF mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **Reset button (2-pin RESET)**
  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

This chapter tells how to change
system settings through the BIOS
Setup menus and describes the BIOS
parameters.
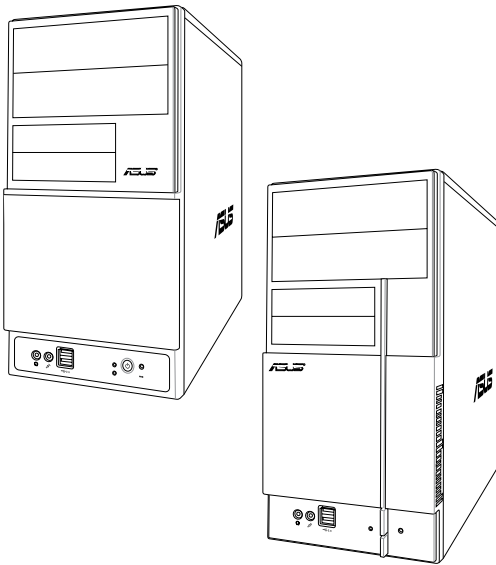
BIOS setup

5.1 Managing and updating your BIOS

The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup.

1. **ASUS EZ Flash:** Updates the BIOS in DOS mode using a floppy disk or the motherboard support CD.

2. **ASUS AFUDOS:** Updates the BIOS in DOS mode using a bootable floppy disk.

3. **ASUS CrashFree BIOS 2:** Updates the BIOS using a bootable floppy disk, or the motherboard support CD when the BIOS file fails or gets corrupted.

4. **ASUS Update:** Updates the BIOS in Windows® environment.

Refer to the corresponding sections for details on these utilities.

Save a copy of the original motherboard BIOS file to a bootable floppy disk or a USB flash disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the ASUS Update or AFUDOS utilities.

5.1.1 Creating a bootable floppy disk

1. Do either one of the following to create a bootable floppy disk.
   DOS environment

   a. Insert a 1.44MB floppy disk into the drive.

   b. At the DOS prompt, type `format` **A:/S** then press <Enter>.
   Windows® XP environment

   a. Insert a 1.44 MB floppy disk to the floppy disk drive.

   b. Click **Start** from the Windows® desktop, then select **My Computer.**

   c. Select the 3 1/2 Floppy Drive icon.

   d. Click **File** from the menu, then select **Format**. A **Format 3 1/2 Floppy Disk** window appears.

   e. Select **Create an MS-DOS startup disk** from the format options field, then click **Start.**
   Windows® 2000 environment

   To create a set of boot disks for Windows® 2000:

   a. Insert a formatted, high density 1.44 MB floppy disk into the drive.

   b. Insert the Windows® 2000 CD to the optical drive.

   c. Click **Start**, then select **Run**.

   d. From the Open field, type

      D:\bootdisk\makeboot a:

      assuming that D: is your optical drive.

   e. Press <Enter>, then follow screen instructions to continue.

a. Insert a formatted, high density 1.44 MB floppy disk to the floppy disk drive.

b. Click [image] from the Windows® desktop, then select **Computer**.

c. Right-click **Floppy Disk Drive** then click **Format** to display the **Format 3 1/2 Floppy** dialog box.

d. Select the **Create an MS-DOS startup disk** check box.

e. Click **Start**.

2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk.

5.1.2 ASUS EZ Flash utility

The ASUS EZ Flash feature allows you to update the BIOS without having to go through the long process of booting from a floppy disk and using a DOS-based utility. The EZ Flash utility is built-in the BIOS chip so it is accessible by pressing <Alt> + <F2> during the Power-On Self Tests (POST).

To update the BIOS using EZ Flash:

1. Visit the ASUS website (www.asus.com) to download the latest BIOS file for the motherboard and rename the same to M2N-MX.ROM.

2. Save the BIOS file to a floppy disk, then restart the system.

3. Press <Alt> + <F2> during POST to display the following.

```
EZFlash starting BIOS update
Checking for floppy...
```

4. Insert the floppy disk that contains the BIOS file to the floppy disk drive. When the correct BIOS file is found, EZ Flash performs the BIOS update process and automatically reboots the system when done.

```
EZFlash starting BIOS update
Checking for floppy...
Floppy found!
Reading file "M2N-MX.ROM". Completed.
Start erasing.......|
Start programming...|
Flashed successfully. Rebooting.
```

• Do not shut down or reset the system while updating the BIOS to prevent system boot failure!

• A "Floppy not found!" error message appears if there is no floppy disk in the drive. A "M2N-MX.ROM not found!" error message appears if the correct BIOS file is not found in the floppy disk. Make sure that you rename the BIOS file to M2N-MX.ROM.

5.1.3 AFUDOS utility

The AFUDOS utility allows you to update the BIOS file in DOS environment using a bootable floppy disk with the updated BIOS file. This utility also allows you to copy the current BIOS file that you can use as backup when the BIOS fails or gets corrupted during the updating process.

Copying the current BIOS

To copy the current BIOS file using the AFUDOS utility:

> • Make sure that the floppy disk is not write-protected and has at least 1024KB free space to save the file.
>
> • The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be same as shown.

1. Copy the AFUDOS utility (afudos.exe) from the motherboard support CD to the bootable floppy disk you created earlier.

2. Boot the system in DOS mode, then at the prompt type:

   afudos /o[filename]

   where the [filename] is any user-assigned filename not more than eight alphanumeric characters for the main filename and three alphanumeric characters for the extension name.

```
A:\>afudos /oOLDBIOS1.rom
```

          Main filename   **Extension name**

3. Press <Enter>. The utility copies the current BIOS file to the floppy disk.

```
A:\>afudos /oOLDBIOS1.rom
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.
   Reading flash ..... done
   Write to file...... ok
A:\>
```

The utility returns to the DOS prompt after copying the current BIOS file.

Updating the BIOS file

To update the BIOS file using the AFUDOS utility:

1.   Visit the ASUS website (www.asus.com) and download the latest BIOS file for
      the motherboard. Save the BIOS file to a bootable floppy disk.

> Write the BIOS filename on a piece of paper. You need to type the exact BIOS
> filename at the DOS prompt.

2.   Copy the AFUDOS utility (afudos.exe) from the motherboard support CD to
      the bootable floppy disk you created earlier.
3.   Boot the system in DOS mode, then at the prompt type:

      afudos /i[filename]

      where [filename] is the latest or the original BIOS file on the bootable floppy disk.

```
A:\>afudos /iM2N-MX.ROM
```

4.   The utility verifies the file and starts updating the BIOS.

```
A:\>afudos /iM2N-MX.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

   WARNING!! Do not turn off power during flash BIOS
   Reading file ....... done
   Reading flash ...... done

   Advance Check ......
   Erasing flash ...... done
```

> Do not shut down or reset the system while updating the BIOS to prevent
> system boot failure!

5.   The utility returns to the DOS prompt after the BIOS update process is
      completed. Reboot the system from the hard disk drive.

```
A:\>afudos /iM2N-MX.ROM
AMI Firmware Update Utility - Version 1.19(ASUS V2.07(03.11.24BB))
Copyright (C) 2002 American Megatrends, Inc. All rights reserved.

   WARNING!! Do not turn off power during flash BIOS
   Reading file ....... done
   Reading flash ...... done

   Advance Check ......
   Erasing flash ...... done
   Writing flash ...... done
   Verifying flash .... done

   Please restart your computer

A:\>
```

5.1.4   ASUS CrashFree BIOS 2 utility

The ASUS CrashFree BIOS 2 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using the motherboard support CD or the floppy disk that contains the updated BIOS file.

> •   Prepare the motherboard support CD, or the floppy disk containing the updated motherboard BIOS before using this utility.
>
> •   Make sure that you rename the original or updated BIOS file in the floppy disk or the USB flash disk to **M2N-MX.ROM.**

Recovering the BIOS from a floppy disk

To recover the BIOS from a floppy disk:

1.   Turn on the system.
2.   Insert the floppy disk with the original or updated BIOS file to the floppy disk drive.
3.   The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
```

When found, the utility reads the BIOS file and starts flashing the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy found!
Reading file "M2N-MX.ROM". Completed.
Start flashing...
```

> DO NOT shut down or reset the system while updating the BIOS! Doing so can cause system boot failure!

4.   Restart the system after the utility completes the updating process.

Recovering the BIOS from the support CD

To recover the BIOS from the support CD:

1. Remove any floppy disk from the floppy disk drive, then turn on the system.
2. Insert the support CD to the optical drive.
3. The utility displays the following message and automatically checks the floppy disk for the original or updated BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
```

When no floppy disk is found, the utility automatically checks the optical drive for the original or updated BIOS file. The utility then updates the corrupted BIOS file.

```
Bad BIOS checksum. Starting BIOS recovery...
Checking for floppy...
Floppy not found!
Checking for CD-ROM...
CD-ROM found!
Reading file "M2N-MX.ROM". Completed.
Start flashing...
```

4. Restart the system after the utility completes the updating process.

The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the ASUS website (www.asus.com) to download the latest BIOS file.

5.1.5   ASUS Update utility

The ASUS Update is a utility that allows you to manage, save, and update the motherboard BIOS in Windows® environment. The ASUS Update utility allows you to:

- · Save the current BIOS file
- · Download the latest BIOS file from the Internet
- · Update the BIOS from an updated BIOS file
- · Update the BIOS directly from the Internet, and
- · View the BIOS version information.

This utility is available in the support CD that comes with the motherboard package.

> ASUS Update requires an Internet connection either through a network or an Internet Service Provider (ISP).

Installing ASUS Update

To install ASUS Update:

1.   Place the support CD in the optical drive. The **Drivers** menu appears.
2.   Click the **Utilities** tab, then click **Install ASUS Update**. See page 3-5 for the **Utilities** screen menu.
3.   The ASUS Update utility is copied to your system.

> Quit all Windows® applications before you update the BIOS using this utility.

Updating the BIOS through the Internet

To update the BIOS through the Internet:

1. Launch the ASUS Update utility from the Windows® desktop by clicking **Start > Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update main window appears.
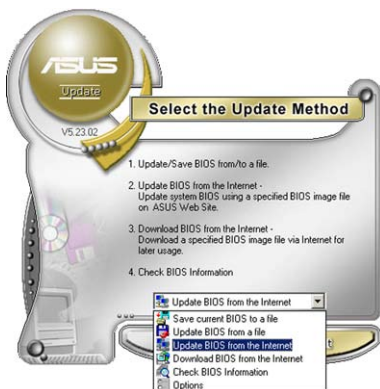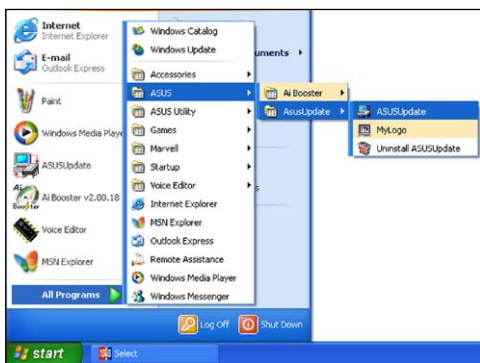
2. Select **Update BIOS from the Internet** option from the drop-down menu, then click **Next**.

3. Select the ASUS FTP site nearest you to avoid network traffic, or click **Auto Select**. Click **Next**.

4.	From the FTP site, select the BIOS
	version that you wish to download.
	Click **Next**.

5.	Follow the screen instructions to
	complete the update process.

	The ASUS Update utility is
	capable of updating itself
	through the Internet. Always
	update the utility to avail all its
	features.

Updating the BIOS through a BIOS file

To update the BIOS through a BIOS file:

1.	Launch the ASUS Update utility from the Windows® desktop by clicking **Start
	> Programs > ASUS > ASUSUpdate > ASUSUpdate**. The ASUS Update
	main window appears.

2.	Select **Update BIOS from a file**
	option from the drop-down menu,
	then click **Next**.
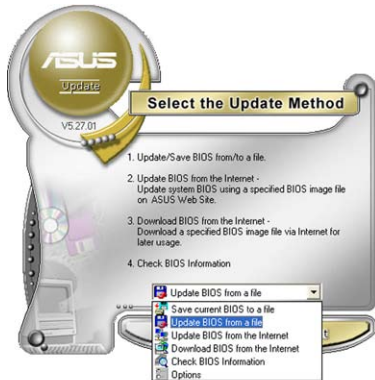
3.	Locate the BIOS file from the **Open**
	window, then click **Open**.

4.	Follow the screen instructions to
	complete the update process.
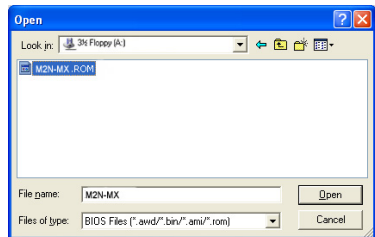
5.2   BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section "5.1 Managing and updating your BIOS."

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to"Run Setup." This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the SPI chip.

The firmware chip on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Del> during the Power-On Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, reboot the system by doing any of the following procedures:

  • Restart using the OS standard shut-down procedure.
  • Press <Ctrl>+<Alt>+<Del> simultaneously.
  • Press the reset button on the system chassis.
  • Press the power button to turn the system off then back on.

> Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+<Del>** keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut-down the system properly from the operating system.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

> •   The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Setup Defaults** item under the Exit Menu. See section "5.7 Exit Menu."
>
> •   The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
>
> •   Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard.

5.2.1 BIOS menu screen

Menu items   Menu bar   Configuration fields   General help

```
                            BIOS SETUP UTILITY
  Main     Advanced     Power     Boot     Exit
    System Time                    [17: 44 : 20]          Use [ENTER], [TAB]
    System Date                    [Tue01/15/2002]        or [SHIFT-TAB] to
    Legacy Diskette A              [1.44M, 3.5in.]        select a field.
                                                          Use [+] or [-] to
                                                          configure system time.
  ▶ IDE Configuration

  ▶ Primary IDE Master          : [Not Detected]
  ▶ Primary IDE Slave           : [Not Detected]        ←→     Select Screen
  ▶ SATA1                       : [Not Detected]        ↑↓     Select Item
  ▶ SATA2                       : [Not Detected]        +−     Change Option
  ▶ System Information                                  F1     General Help
                                                        F10    Save and Exit
                                                        ESC    Exit

              v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.
```

Sub-menu items   Navigation keys

5.2.2 Menu bar

The menu bar on top of the screen has the following main items:

Main   For changing the basic system configuration

Advanced   For changing the advanced system settings

Power   For changing the advanced power management (APM)
                configuration

Boot   For changing the system boot configuration

Exit   For selecting the exit options and loading default
                settings

To select an item on the menu bar, press the right or left arrow key on the keyboard
until the desired item is highlighted.

5.2.3 Navigation keys

At the bottom right corner of a menu screen are the navigation keys for that
particular menu. Use the navigation keys to select items in the menu and change
the settings.

> Some of the navigation keys differ from one screen to another.

5.2.4   Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting Main shows the Main menu items.

The other items (Advanced, Power, Boot, and Exit) on the menu bar have their respective menu items.
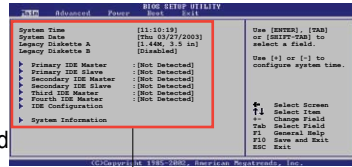
Main menu items

5.2.5   Sub-menu items

A solid triangle before each item on any menu screen means that the iteam has a sub-menu. To display the sub-menu, select the item and press <Enter>.

5.2.6   Configuration fields

These fields show the values for the menu items. If an item is user- configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to "2.2.7 Pop-up window."

5.2.7   Pop-up window

Select a menu item then press <Enter> to display a pop-up window with the configuration options for that item.

5.2.8   Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> /<Page Down> keys to display the other items on the screen.
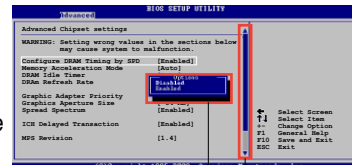
Pop-up window

Scroll bar

5.2.9   General help

At the top right corner of the menu screen is a brief description of the selected item.

5.3   Main menu

When you enter the BIOS Setup program, the Main menu screen appears, giving you an overview of the basic system information.

Refer to section "5.2.1 BIOS menu screen" for information on the menu screen items and how to navigate through them.

```
                          BIOS SETUP UTILITY
   Main      Advanced     Power     Boot     Exit

   System Time               [17:47:26]             Use [ENTER], [TAB]
   System Date               [Tue 01/15/2002]       or [SHIFT-TAB] to
   Legacy Diskette A         [1.44M, 3.5 in]        select a field.

 ▶  IDE Configuration

 ▶  Primary IDE Master       :[Not Detected]        Use [+] or [-] to
 ▶  Primary IDE Slave        :[Not Detected]        configure system time.
 ▶  SATA 1                   :[Not Detected]
 ▶  SATA 2                   :[Not Detected]

 ▶  System Information                              ←→   Select Screen
                                                    ↑↓   Select Item
                                                    +-   Change Option
                                                    F1   General Help
                                                    F10  Save and Exit
                                                    ESC  Exit


        v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.
```

5.3.1   System Time [xx:xx:xx]

Allows you to set the system time.

5.3.2   System Date [Day xx/xx/xxxx]

Allows you to set the system date.

5.3.3   Legacy Diskette A [1.44M, 3.5 in.]

Sets the type of floppy drive installed. Configuration options: [Disabled] [360K, 5.25 in.] [1.2M , 5.25 in.] [720K , 3.5 in.] [1.44M, 3.5 in.] [2.88M, 3.5 in.]

5.3.4   IDE Configuration

The items in this menu allow you to set or change the configurations for the IDE devices installed in the system. Select an item then press <Enter> if you wish to configure the item.

```
                          BIOS SETUP UTILITY
 Main

  IDE Configuration                                 Disabled: disables
                                                    the integrated IDE
  Onboard IDE Controller          [Enabled]         Controller.
  Serial-ATA Devices              [Enabled]         Enabled: enables
                                                    the integrated IDE
  nVidia RAID Function            [Disabled]         Controller.
```
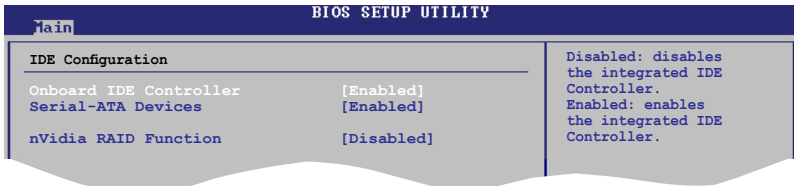
Onboard IDE Controller [Enabled]

Allows you to enable or disable the onboard IDE controller.
Configuration options: [Enabled] [Disabled]

Serial-ATA Devices [Enabled]

Allows you to disable or set the Serial-ATA devices.
Configuration options: [Disabled] [Enabled]

nVidia RAID Function [Disabled]

Allows you to enable or disable the NVIDIA RAID function.
Configuration options: [Enabled] [Disabled]

5.3.5   Primary IDE Master/Slave

While entering Setup, the BIOS automatically detects the presence of IDE devices. There is a separate sub-menu for each IDE device. Select a device item then press <Enter> to display the IDE device information.

```
                          BIOS SETUP UTILITY
 Main    Advanced    Power    Boot    Exit

  Primary IDE Master                                Select the type
                                                    of device connected to
  Device      : Not Detected                        the system.

  Type                            [Auto]
  LBA/Large Mode                  [Auto]
  Block(Multi-sector Transfer) M  [Auto]
  PIO Mode                        [Auto]
  DMA Mode                        [Auto]
  SMART Monitoring                [Auto]
  32Bit Data Transfer             [Enabled]         ↔     Select Screen
                                                    ↑↓    Select Item
                                                    +-    Change Option
                                                    F1    General Help
                                                    F10   Save and Exit
                                                    ESC   Exit

         v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.
```

The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show N/A if no IDE device is installed in the system.

Type [Auto]

Selects the type of IDE drive. Setting to Auto allows automatic selection of the appropriate IDE device type. Select CDROM if you are specifically configuring a CD-ROM drive. Select ARMD (ATAPI Removable Media Device) if your device is either a ZIP, LS-120, or MO drive. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to Auto enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

Block (Multi-sector Transfer) M [Auto]

Enables or disables data multi-sectors transfers. When set to Auto, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to [Disabled], the data transfer from and to the device occurs one sector at a time.
Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode. Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto] [SWDMA0] [SWDMA1] [SWDMA2] [MWDMA0] [MWDMA1] [MWDMA2] [UDMA0] [UDMA1] [UDMA2] [UDMA3] [UDMA4] [UDMA5]

SMART Monitoring [Auto]

Sets the Smart Monitoring, Analysis, and Reporting Technology.
Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Enabled]

Enables or disables 32-bit data transfer. Configuration options: [Disabled] [Enabled]

5.3.6   SATA1 and SATA2

While entering Setup, the BIOS automatically detects the presence of SATA devices. There is a separate sub-menu for each SATA device. Select a device item then press <Enter> to display the SATA device information.

```
                         BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Exit

   SATA1                                           Disabled: Disables LBA
                                                   Mode.
   Device        : Not Detected                    Auto: Enables LBA
                                                   Mode if the device
   LBA/Large Mode              [Auto]              supports it and the
                                                   device is not already
   Block(Multi-sector Transfer) M    [Auto]        formatted with LBA
   PIO Mode                    [Auto]              Mode disabled.
   DMA Mode                    [Auto]
   SMART Monitoring            [Auto]
   32Bit Data Transfer         [Enabled]           ←→    Select Screen
                                                   ↑↓    Select Item
                                                   +-    Change Option
                                                   F1    General Help
                                                   F10   Save and Exit
                                                   ESC   Exit

            v00.00 (C)Copyright 1985-2002, American Megatrends, Inc.
```

The BIOS automatically detects the values opposite the dimmed items (Device, Vendor, Size, LBA Mode, Block Mode, PIO Mode, Async DMA, Ultra DMA, and SMART monitoring). These values are not user-configurable. These items show N/A if no IDE device is installed in the system.

Type [Auto]

Selects the type of IDE drive. Setting to Auto allows automatic selection of the appropriate IDE device type. Select CDROM if you are specifically configuring a CD-ROM drive. Select ARMD (ATAPI Removable Media Device) if your device is either a ZIP, LS-120, or MO drive. Configuration options: [Not Installed] [Auto] [CDROM] [ARMD]

LBA/Large Mode [Auto]

Enables or disables the LBA mode. Setting to Auto enables the LBA mode if the device supports this mode, and if the device was not previously formatted with LBA mode disabled. Configuration options: [Disabled] [Auto]

Block (Multi-sector Transfer) M [Auto]

Enables or disables data multi-sectors transfers. When set to Auto, the data transfer from and to the device occurs multiple sectors at a time if the device supports multi-sector transfer feature. When set to [Disabled], the data transfer from and to the device occurs one sector at a time.
Configuration options: [Disabled] [Auto]

PIO Mode [Auto]

Selects the PIO mode. Configuration options: [Auto] [0] [1] [2] [3] [4]

DMA Mode [Auto]

Selects the DMA mode. Configuration options: [Auto] [SWDMA0] [SWDMA1]
[SWDMA2] [MWDMA0] [MWDMA1] [MWDMA2] [UDMA0] [UDMA1] [UDMA2]
[UDMA3] [UDMA4] [UDMA5]

SMART Monitoring [Auto]

Sets the Smart Monitoring, Analysis, and Reporting Technology.
Configuration options: [Auto] [Disabled] [Enabled]

32Bit Data Transfer [Enabled]

Enables or disables 32-bit data transfer. Configuration options: [Disabled]
[Enabled]

5.3.7   System Information

This menu gives you an overview of the general system specifications. The BIOS
automatically detects the items in this menu.

```
                         BIOS SETUP UTILITY
   Main


   AMIBIOS

   Version   : 0101
   Build Date : 10/09/07

   Processor

   Type      : AMD Sempron(tm) Processor 3200+
   Speed     : 1800MHz
   Count     : 1

   System Memory                            ←→  Select Screen
   Usable Size: 384MB                       ↑↓  Select Item
                                            +−  Change Option
                                            F1  General Help
```
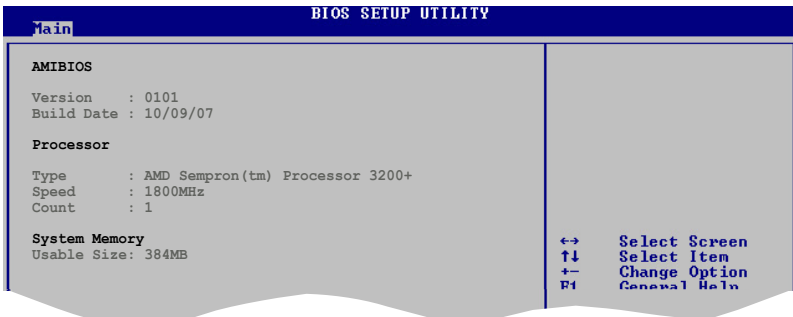
AMI BIOS

Displays the auto-detected BIOS information

Processor

Displays the auto-detected CPU specification

System Memory

Displays the auto-detected system memory

5.4 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

```
                       BIOS SETUP UTILITY
   Main    Advanced    Power    Boot    Exit

                                            Configure CPU.
 ▶ CPU Configuration
 ▶ Chipset
 ▶ Onboard Devices Configuration
 ▶ PCIPnP
 ▶ USB Configuration




                                     ←→     Select Screen
                                     ↑↓     Select Item
                                     Enter  Go to Sub Screen
                                     F1     General Help
                                     F10    Save and Exit
                                     ESC    Exit

        vMM.mm (C)Copyright 1985-2002, American Megatrends, Inc.
```
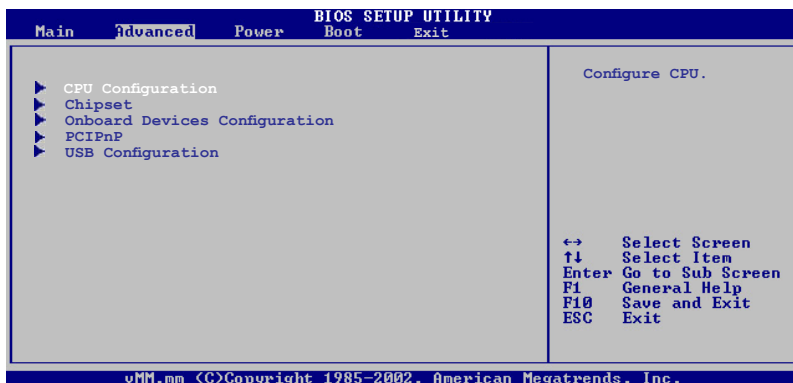
5.4.1 CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.

```
                         BIOS SETUP UTILITY
   Main     Advanced     Power     Boot     Exit
 ┌─────────────────────────────────────────────┐ ┌─────────────────────────┐
 │ CPU Configuration                          ▲ │ │ This option should      │
 │ Module Version: 13.15                        │ │ remain disabled for     │
 │ AGESA Version: 3.1.1.0                       │ │ the normal operation.   │
 │ Physical Count: 1                            │ │ The driver developer    │
 │ Logical Count: 1                             │ │ may enable it for       │
 │                                              │ │ testing purpose.        │
 │ AMD Sempron(tm) Processor 3200+              │ │                         │
 │ Revision: F2                                 │ │                         │
 │ Cache L1: 128KB                              │ │                         │
 │ Cache L2: 128KB                              │ │                         │
 │ Cache L3: N/A                                │ │                         │
 │ Speed   : 1800MHz                            │ │                         │
 │ Current FSB Multiplier: 9x                   │ │ ←→    Select Screen     │
 │ Maximum FSB Multiplier: 9x                   │ │ ↑↓    Select Item       │
 │ Able to Change Freq.  : Yes                  │ │ Enter Go to Sub Screen  │
 │ uCode Patch Level    : 0x62                  │ │ F1    General Help      │
 │ GART Error Reporting       [Disabled]        │ │ F10   Save and Exit     │
 │ Microcode Updation         [Enabled]         │ │ ESC   Exit              │
 │ Secure Virtual Machine Mode [Enabled]        │ │                         │
 │ Cool'n'Quiet               [Disabled]      ▼ │ │                         │
 ├──────────────────────────────────────────────┤ │                         │
 │ ACPI SRAT Table             [Enabled]        │ │                         │
 └──────────────────────────────────────────────┘ └─────────────────────────┘
             vMM.mm (C)Copyright 1985-2002, American Megatrends, Inc.
```

GART Error Reporting [Disabled]

This option should remain disabled for the normal operation. The driver developer may enable it for testing purpose. Configuration options: [Disabled] [Enabled]

Microcode Updation [Enabled]

Allows you to enable or disable the microcode updation.
Configuration options: [Continuous] [Discrete]

Secure Virtual Machine Mode [Enabled]

Allows you to enable or disable the AMD Secure Virtual Machine.
Configuration options: [Disabled] [Enabled]

Cool'n'Quiet [Disabled]

Allows you to enable or disable the generation of ACPI_PPC, _PSS, and _PCT objects. Configuration options: [Disabled] [Enabled]

ACPI SRAT Table [Enabled]

Allows you to enable or disable the building of ACPI SRAT table.
Configuration options: [Disabled] [Enabled]

5.4.2 Chipset

The Chipset menu allows you to change the advanced chipset settings. Select an item then press <Enter> to display the sub-menu.

```
                        BIOS SETUP UTILITY
        Advanced

 Advanced Chipset Settings                          Memory Options &
 WARNING: Setting wrong values in below sections     Information
          may cause the system to  malfunction.

 ▶ NorthBridge Configuration
 ▶ Southbridge Configuration
```

NorthBridge Configuration
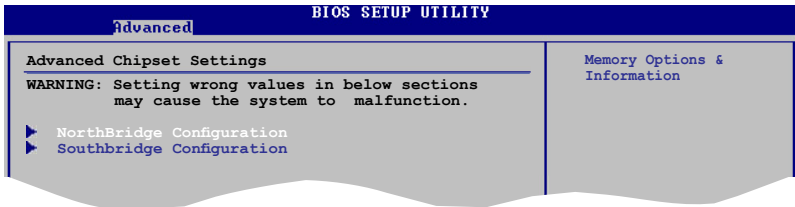
```
                        BIOS SETUP UTILITY
        Advanced

 Memory Controller

 ▶ Memory Configuration
 ▶ DRAM Timing Configuration
```

Memory Configuration

```
                        BIOS SETUP UTILITY
        Advanced

 Memory Configuration                               Enable Bank Memory
                                                    Interleaving
 Bank Interleaving              [Disabled]
 Channel Interleaving           [Auto]
 Enable Clock to ALL DIMMs      [Disabled]
 MemCLK Tristate C3/ATLVID      [Disabled]
 Memory Hole Remapping          [Enabled]
 Unganged Mode support          [Enabled]
 Power Down Enable              [Enabled]
   Power Down Mode              [Channel]
                                                ←→   Select Screen
                                                ↑↓   Select Item
                                                +-   Change Option
                                                F1   General Help
                                                F10  Save and Exit
                                                ESC  Exit
```

Bank Interleaving [Disabled]
Allows you to enable or disable the Bank Memory Interleaving.
Configuration options: [Disabled] [Auto]

Channel Interleaving [Auto]
Allows you to enable or disable channel memory interleaving.
Configuration options: [Disabled] [Auto] [Address bits 6] [Address bits 12]
[Hash*, XOR of Address bits [20:16, 6] [Hash* XOR of Address bits [20:16, 9]

Enable Clock to All DIMMs [Disabled]
Allows you to enable or disable the Unused Clocks to DIMMs Even Memory
Slots are not populated. Configuration options: [Disabled] [Enabled]

MemCLK Tristate C3/ATLVID [Disabled]
Allows you to enable or disable the MemCLK Tri-Stating during C3 and Alt VID.
Configuration options: [Disabled] [Enabled]

Memory Hole Remapping [Enabled]
Allows you to enable or disable the Memory Remapping Around Memory
Hole.Configuration options: [Disabled] [Enabled]

Unganged Mode support [Enabled]
Allows you to enable or disable the Force Unganged mode.
Configuration options: [Disabled] [Enabled]

Power Down Enable [Enabled]
Allows DIMMs to enter power down mode by deasserting the clock enable
signal when DIMMs are not in use.
Configuration options: [Enabled] [Disabled]

Power Down Mode [Channel]

Configuration options: [Channel] [Chip Select]

DRAM Timing Configuration

The DRAM Timing configuration menu allows you to change the DRAM Timing settings.

```
                               BIOS SETUP UTILITY
        Advanced

   DRAM Timing Configuration                                DRAM ECC allows
                                                            hardware to report
   Memory Clock Mode              [Auto]                    and correct memory
                                                            errors automatically
                                                            maintaining system
                                                            integrity.
```

Memory Clock Mode [Auto]
Allows you to set the memory clock mode. Configuration options: [Auto] [Limit] [Manual]

> The following item shows when the Memory Clock Mode is set to [Limit] or [Manual]

Memclock Value [200 MHz]

Allows you to set the memory clock value. Configuration options: [200 MHz] [266 MHz] [333 MHz] [400 MHz] [533 MHz]

SouthBridge Configuration

```
                               BIOS SETUP UTILITY
        Advanced

   SouthBridge MCP61 Chipset Configuration

    Primary Graphics Adapter        [PCIE -> PCI -> IGP]
    OnChip VGA Frame Buffer Size    [128MB]
    AZALIA AUDIO                    [Auto]
    Front Panel Select             [HD Audio]


    OnBoard LAN                     [Auto]
      OnBoard LAN Boot ROM         [Disabled]
    MCP61 ACPI HPET TABLE          [Enabled]
```
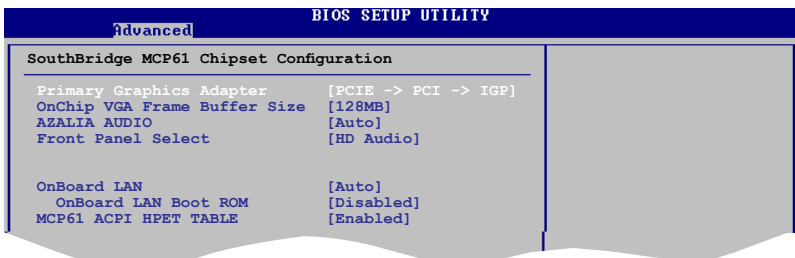
Primary Graphics Adapter [PCI -> PCI -> IGP]
Allows you to set the display devices priority.
Configuration options: [PCI -> PCI -> IGP] [IGP -> PCI -> PCIE]

OnChip VGA Frame Buffer Size [128MB]
Allows you to set the MCP61 share memory size. Configuration options: [16MB] [32MB] [64MB] [128MB] [256MB]

AZALIA AUDIO [Auto]
Allows you to enable or disable the AZALIA Audio function. Configuration options: [Auto] [Disabled]

Front Panel Select [HD Audio]
Allows you to set audio support type for the front panel.
Configuration options: [AC97] [HD Audio]

Onboard LAN [Auto]
Allows you to enable or disable the onboard LAN controller.
Configuration options: [Auto] [Disabled]

OnBoard LAN Boot ROM [Disabled]

Allows you to enable or disable the boot ROM in the onboard LAN controller. This item appears only when the Onboard LAN item is set to Auto. Configuration options: [Disabled] [Enabled]

MCP61 ACPI HPET TABLE [Enabled]
Allows you to enable or disable the MCP61 ACPI HPET table.
Configuration options: [Disabled] [Enabled]

5.4.3   Onboard Devices Configuration

```
                        BIOS SETUP UTILITY
         Advanced

  Configure ITE8712 Super IO Chipset              Allows BIOS to Select
                                                  Serial Port1 Base
  Serial Port1 Address          [3F8/IRQ4]        Addresses.
  Parallel Port Address         [378]
  Parallel Port Mode            [Normal]
    Parallel Port IRQ           [IRQ7]


                                                  ←→    Select Screen
                                                  ↑↓    Select Item
                                                  +-    Change Option
```
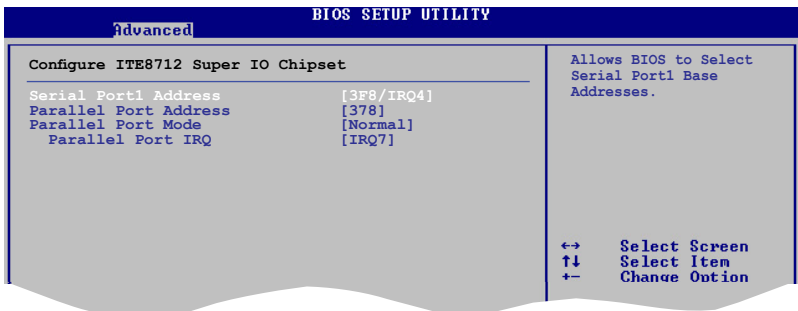
Serial Port1 Address [3F8/IRQ4]

Allows you to select the Serial Port1 base address. Configuration options:
[Disabled] [3F8/IRQ4][2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3]

Parallel Port Address [378]

Allows you to select the Parallel Port base addresses.
Configuration options: [Disabled] [378] [278] [3BC]

Parallel Port Mode [Normal]

Allows you to select the Parallel Port mode.
Configuration options: [Normal] [EPP] [ECP] [EPP+ECP]

> *ECP Version[1.9]*
> Appears only when the Parallel Port Mode is set to [EPP] or [EPP+ECP].
> This item allows you to set the Parallel Port EPP version.
> Configuration options: [1.9] [1.7]
>
> *ECP Mode DMA Channel [DMA3]*
> Appears only when the Parallel Port Mode is set to [ECP] or [EPP+ECP].
> This item allows you to set the Parallel Port ECP DMA.
> Configuration options: [DMA0] [DMA1] [DMA3]
>
> *Parallel Port IRQ [IRQ7]*
> Allows you to select parallel port IRQ. Configuration options: [IRQ5] [IRQ7]

5.4.4   PCI PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes setting IRQ and DMA channel resources for either PCI/PnP or legacy ISA devices, and setting the memory size block for legacy ISA devices.
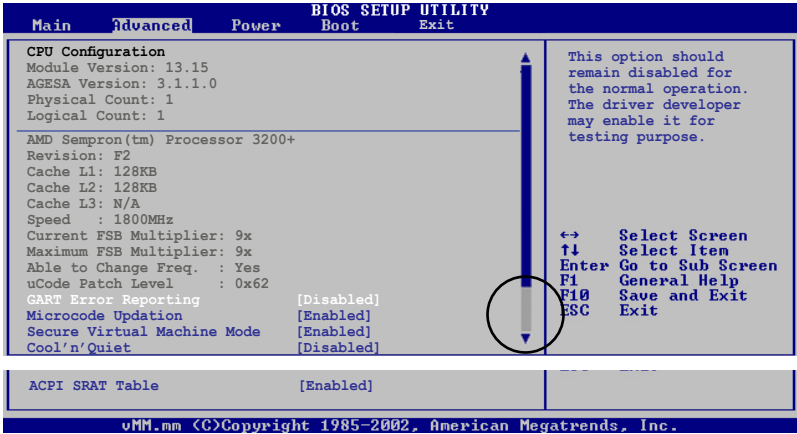
⚠ Take caution when changing the settings of the PCI PnP menu items. Incorrect field values can cause the system to malfunction.

```
                        BIOS SETUP UTILITY
          Advanced

   Advanced PCI/PnP Settings                          NO: lets the BIOS
                                                      configure all the
   WARNING: Setting wrong values in below sections    devices in the system.
            may cause system to malfunction.          YES: lets the
                                                      operating system
   Plug And Play O/S              [No]                 configure Plug and Play
   PCI Latency Timer             [64]                  (PnP) devices not
   Allocate IRQ to PCI VGA       [Yes]                 required for boot if
   Palette Snooping              [Disabled]            your system has a Plug
                                                      and Play operating
   IRQ-3 assigned to            [PCI Device]           system.
   IRQ-4 assigned to            [PCI Device]
   IRQ-5 assigned to            [PCI Device]           ↔    Select Screen
   IRQ-7 assigned to            [PCI Device]           ↑↓   Select Item
   IRQ-9 assigned to            [PCI Device]           +-   Change Option
   IRQ-10 assigned to           [PCI Device]           F1   General Help
   IRQ-11 assigned to           [PCI Device]           F10  Save and Exit
   IRQ-14 assigned to           [PCI Device]           ESC  Exit
   IRQ-15 assigned to           [PCI Device]

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```

Plug and Play O/S [No]

When set to [No], BIOS configures all the devices in the system. When set to [Yes] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.
Configuration options: [No] [Yes]

PCI Latency Timer [64]

Allows you to select the value in units of PCI clocks for the PCI device latency timer register. Configuration options: [32] [64] [96] [128] [160] [192] [224] [248]

Allocate IRQ to PCI VGA [Yes]

When set to [Yes], BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ. When set to [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. Configuration options: [No] [Yes]

Palette Snooping [Disabled]

When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly. Configuration options: [Disabled] [Enabled]

IRQ-xx assigned to [PCI Device]

When set to [PCI Device], the specific IRQ is free for use of PCI/PnP devices. When set to [Reserved], the IRQ is reserved for legacy ISA devices. Configuration options: [PCI Device] [Reserved]

5.4.5   USB Configuration

The items in this menu allows you to change the USB-related features. Select an item then press <Enter> to display the configuration options.

```
                             BIOS SETUP UTILITY
        Advanced

   USB Configuration                                     Options

   Module Version - 2.24.0-11.4
                                                    Enabled
   USB Devices Enabled:                             Disabled
            None

   USB 1.1 Controller           [Enabled]
   USB 2.0 Controller           [Enabled]
   Legacy USB Support           [Auto]
   USB 2.0 Controller Mode      [HiSpeed]
                                                    ↔     Select Screen
```
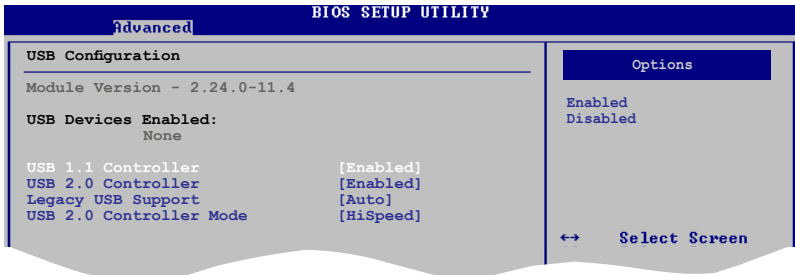
✎   The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows None.

USB 1.1 Controller [Enabled]

Allows you to enable or disable the USB 1.1 Controller. Configuration options: [Enabled] [Disabled]

USB 2.0 Controller [Enabled]

Allows you to enable or disable the USB 2.0 Controller. Configuration options: [Enabled] [Disabled]

Legacy USB Support [Auto]

Allows you to enable or disable support for USB devices on legacy operating systems (OS). Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. Configuration options: [Disabled] [Enabled] [Auto]

USB 2.0 Controller Mode [HiSpeed]

Allows you to configure the USB 2.0 controller in HiSpeed (480 Mbps) or Full Speed (12 Mbps). Configuration options: [HiSpeed] [Full Speed]

5.5 Power menu

The Power menu items allow you to change the settings for the Advanced Power Management (APM). Select an item then press <Enter> to display the configuration options.

```
                    BIOS SETUP UTILITY
   Main    Advanced    Power    Boot    Exit

  Suspend Mode                 [Auto]              Select the ACPI state
  ACPI Version Features        [Disabled]          used for System
  ACPI APIC Support            [Enabled]           Suspend.

  ► APM Configuration
  ► Hardware Monitor
```
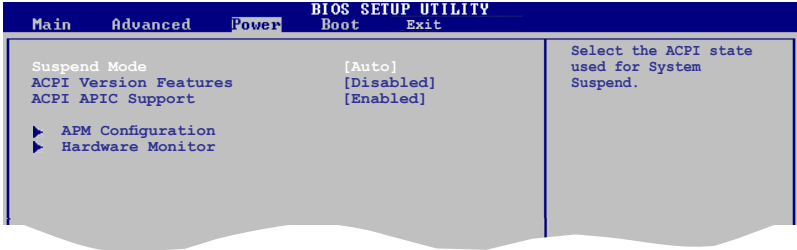
5.5.1   Suspend Mode [Auto]

Allows you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend. Configuration options: [S1 (POS) Only] [S3 only] [Auto]

5.5.2   ACPI Version Features [Disabled]

Allows you to add more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications. Configuration options: [Disabled] [Enabled]

5.5.3   ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list. Configuration options: [Disabled] [Enabled]

5.5.4   APM Configuration

```
                           BIOS SETUP UTILITY
                    Power
  APM Configuration                                   Go into  On/Off
                                                      or Suspend when
  Power Button Mode               [On/Off]            Power button
  Restore on AC Power Loss        [Power Off]         is pressed.

  Power On By PCI(-E) Device      [Disabled]
  Power On By Ring                [Disabled]
  Power On By PS/2 KB/MS          [Disabled]
  Power On By RTC Alarm           [Disabled]
```
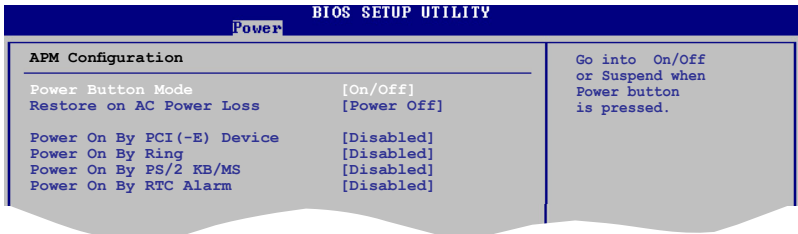
Power Button Mode [On/Off]

Allows the system to go into On/Off mode or suspend mode when the power
button is pressed. Configuration options: [On/Off] [Suspend]

Restore on AC Power Loss [Power Off]

When set to Power Off, the system goes into off state after an AC power loss.
When set to Power On, the system goes on after an AC power loss.
Configuration options: [Power Off] [Power On]

Power On By PCI(-E) Device [Disabled]

When set to [Enabled], this parameter allows you to turn on the system through a
PCI LAN or modem card. This feature requires an ATX power supply that provides
at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Power On By Ring [Disabled]

Enable or disable RI to generate a wake event. Configuration options: [Disabled]
[Enabled]

Power On By PS/2 KB/MS [Disabled]

Enable or disable PS/2 Keyboard/Mouse to generate a wake event.
Configuration options: [Disabled] [Enabled]

Power On By RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. When this item is
set to Enabled, the items RTC Alarm Date, RTC Alarm Hour, RTC Alarm Minute,
and RTC Alarm Second appear with set values. Configuration options: [Disabled]
[Enabled]

5.5.5 Hardware Monitor

```
                          BIOS SETUP UTILITY
                 Power

   Hardware Monitor                                    CPU Temperature

   CPU Temperature              [41°C/105.5°F]
   MB Temperature               [31°C/87.5°F]

   CPU Fan Speed (RPM)          [5232RPM]
   Chassis Fan1 Speed           [N/A]

   VCORE Voltage                [ 1.376V]
   3.3V Voltage                 [ 3.312V]
   5V Voltage                   [ 5.068V]
   12V Voltage                  [11.977V]       ←→      Select Screen
                                                ↑↓      Select Item
   Smart Q-Fan Function         [Enabled]       +-      Change Option
                                                F1      General Help
                                                F10     Save and Exit
                                                ESC     Exit


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```

CPU Temperature [xxxºC/xxxºF]
MB Temperature [xxxºC/xxxºF]

The onboard hardware monitor automatically detects and displays the motherboard and CPU temperatures. Select Ignored if you do not wish to display the detected temperatures.

CPU Fan Speed (RPM) [xxxxRPM] or [N/A] or [Ignored]

The onboard hardware monitor automatically detects and displays the CPU fan speed in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows N/A. Select Ignored if you do not wish to display the detected speed.

Chassis Fan1 Speed [xxxxRPM] or [N/A] or [Ignored]

The onboard hardware monitor automatically detects and displays the chassis fan speed in rotations per minute (RPM). If the fan is not connected to the chassis, the specific field shows N/A. Select Ignored if you do not wish to display the detected speed.

VCORE Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

Smart Q-Fan Function [Disabled]

Allows you to enable or disable the ASUS Q-Fan feature that smartly adjusts the fan speeds for more efficient system operation. Configuration options: [Disabled] [Enabled]

5.6 Boot menu

The Boot menu items allow you to change the system boot options. Select an item then press <Enter> to display the sub-menu.

```
                    BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Exit

  Boot settings                                    Specifies the Boot
 ────────────────────────────────────────         Device Priority
 ▶  Boot Device Priority                           sequence.

                                                   A virtual floppy disk
 ▶  Boot Settings Configuration                    drive (Floppy Drive B:
 ▶  Security                                       ) may appear when you
                                                   set the CD-ROM drive
                                                   as the first boot
                                                   device.

                                                   ←→     Select Screen
                                                   ↑↓     Select Item
                                                   +-     Change Option
                                                   F1     General Help
                                                   F10    Save and Exit
                                                   ESC    Exit

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```
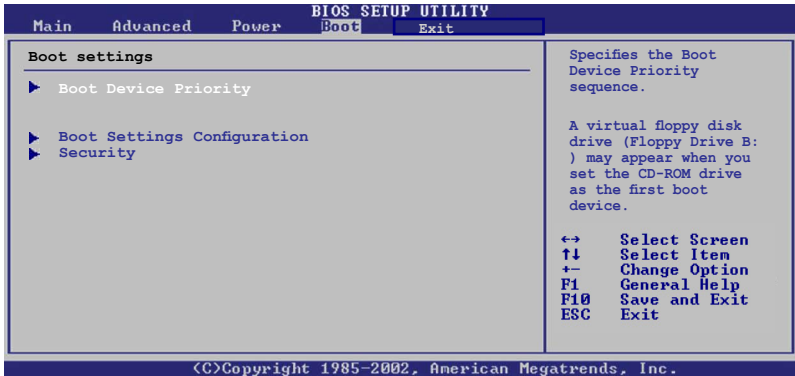
5.6.1 Boot Device Priority

```
                    BIOS SETUP UTILITY
  Main    Advanced    Power    Boot    Exit

  Boot Device Priority                             Specifies the boot
 ────────────────────────────────────────         sequence form the
  1st Boot Device            [1st FLOPPY DRIVE]    available devices.
  2nd Boot Device            [Hard Drive]
  3rd Boot Device            [ATAPI CD-ROM]
```

1st ~ xxth Boot Device [1st Floppy Drive]

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Configuration options: [xxxxx Drive] [Disabled]

5.6.2   Boot Settings Configuration

```
                    BIOS SETUP UTILITY
                    Boot

  Boot Settings Configuration                        Allows BIOS to skip
  ─────────────────────────────────────             certain tests while
  Quick Boot                    [Enabled]            booting. This will
  Full Screen Logo              [Enabled]            decrease the time
  AddOn ROM Display Mode        [Force BIOS]         needed to boot the
  Bootup Num-Lock               [On]                 system.
  PS/2 Mouse Support            [Auto]
  Wait For 'F1' If Error        [Enabled]
  Hit 'DEL' Message Display     [Enabled]
  Interrupt 19 Capture          [Disabled]
```

Quick Boot [Enabled]

Enabling this item allows the BIOS to skip some power on self tests (POST) while booting to decrease the time needed to boot the system. When set to [Disabled], BIOS performs all the POST items. Configuration options: [Disabled] [Enabled]

Full Screen Logo [Enabled]

This allows you to enable or disable the full screen logo display feature. Configuration options: [Disabled] [Enabled]

> Set this item to [Enabled] to use the ASUS MyLogo™ feature.

Add On ROM Display Mode [Force BIOS]

Sets the display mode for option ROM. Configuration options: [Force BIOS] [Keep Current]

Bootup Num-Lock [On]

Allows you to select the power-on state for the NumLock. Configuration options: [Off] [On]

PS/2 Mouse Support [Auto]

Allows you to enable or disable support for PS/2 mouse. Configuration options: [Disabled] [Enabled] [Auto]

Wait for 'F1' If Error [Enabled]

When set to Enabled, the system waits for the F1 key to be pressed when error occurs. Configuration options: [Disabled] [Enabled]

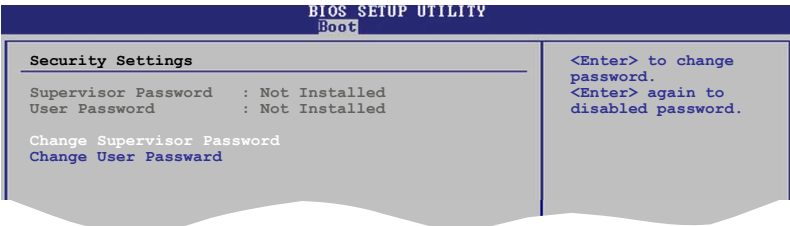### Hit 'DEL' Message Display [Enabled]

When set to Enabled, the system displays the message "Press DEL to run Setup" during POST. Configuration options: [Disabled] [Enabled]

Interrupt 19 Capture [Disabled]

When set to [Enabled], this function allows the option ROMs to trap Interrupt 19. Configuration options: [Disabled] [Enabled]

5.6.3 Security

The Security menu items allow you to change the system security settings. Select an item then press <Enter> to display the configuration options.

```
                        BIOS SETUP UTILITY
                           Boot

    Security Settings                          <Enter> to change
                                               password.
    Supervisor Password    : Not Installed     <Enter> again to
    User Password          : Not Installed     disabled password.

    Change Supervisor Password
    Change User Password
```

Change Supervisor Password

Select this item to set or change the supervisor password. The Supervisor Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a Supervisor Password:

1. Select the Change Supervisor Password item and press <Enter>.
2. From the password box, type a password composed of at least six letters and/or numbers, then press <Enter>.
3. Confirm the password when prompted.

The message "Password Installed" appears after you successfully set your password.

To change the supervisor password, follow the same steps as in setting a user password.

To clear the supervisor password, select the Change Supervisor Password then press <Enter>. The message "Password Uninstalled" appears.

> If you forget your BIOS password, you can clear clear it by erasing the CMOS Real Time Clock (RTC) RAM. See section "4.3 Jumpers" for information on how to erase the RTC RAM.

After you have set a supervisor password, the other items appear to allow you to change other security settings.

```
                        BIOS SETUP UTILITY
                           Boot

  Security Settings                                  <Enter> to change
                                                     password.
  Supervisor Password   : Not Installed              <Enter> again to
  User Password         : Not Installed              disabled password.

  Change Supervisor Password
  User Access Level            [Full Access]
  Change User Password
  Clear User Password
  Password Check               [Setup]
```

User Access Level [Full Access]

This item allows you to select the access restriction to the Setup items.
Configuration options: [No Access] [View Only] [Limited] [Full Access]

No Access prevents user access to the Setup utility.

View Only allows access but does not allow change to any field.

Limited allows changes only to selected fields, such as Date and Time.

Full Access allows viewing and changing all the fields in the Setup utility.

Change User Password

Select this item to set or change the user password. The User Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a User Password:

1.   Select the Change User Password item and press <Enter>.
2.   On the password box that appears, type a password composed of at least six letters and/or numbers, then press <Enter>.
3.   Confirm the password when prompted.

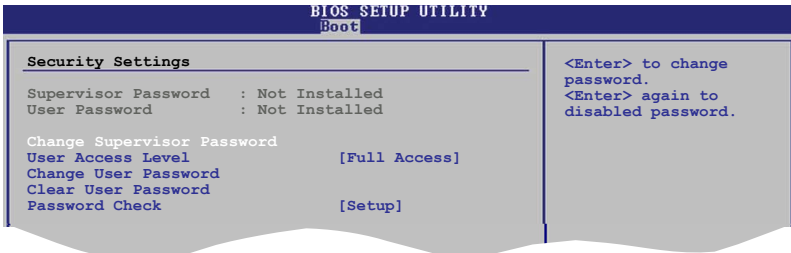The message "Password Installed" appears after you set your password successfully.

To change the user password, follow the same steps as in setting a user password.
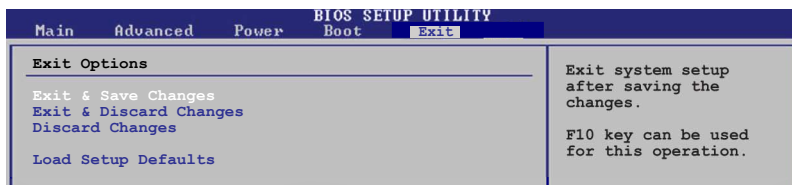
Clear User Password

Select this item to clear the user password.

Password Check [Setup]

When set to [Setup], BIOS checks for user password when accessing the Setup utility. When set to [Always], BIOS checks for user password both when accessing Setup and booting the system. Configuration options: [Setup] [Always]

5.7 Exit menu

The Exit menu items allow you to load the optimal or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items.

```
                        BIOS SETUP UTILITY
   Main    Advanced    Power    Boot    [ Exit ]

   Exit Options                                        Exit system setup
                                                       after saving the
   Exit & Save Changes                                 changes.
   Exit & Discard Changes
   Discard Changes                                     F10 key can be used
                                                       for this operation.
   Load Setup Defaults
```

> Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Exit & Save Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. An onboard backup battery sustains the CMOS RAM so it stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select **OK** to save changes and exit.

> If you attempt to exit the Setup program without saving your changes, the program prompts you with a message asking if you want to save your changes before exiting. Press <Enter> to save the changes while exiting.

Exit & Discard Changes

Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than System Date, System Time, and Password, the BIOS asks for a confirmation before exiting.

Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select **OK** to discard any changes and load the previously saved values.

Load Setup Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select **OK** to load default values. Select **Exit & Save Changes** or make other changes before saving the values to the non-volatile RAM.